

# QL Today

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2003

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The Magazine about QL, QDOS,  
Sinclair Computers, SMSQ...

[www.QLToday.com](http://www.QLToday.com)

QL Today  
Mega-CD

Volume 7  
Issue 5

**NOW**  
That's What I QL Useful!



**Yes, here is the  
first QL Cover  
CD for You!**

**Please  
check  
renewal  
form first!**

**New Aurora Colour Drivers  
New 3D style Window Manager  
Q-Word Game News  
and much more...  
details, tests, reviews, listings  
... all inside this issue!**

# Contents

- 3 Editorial
- 4 News
- 6 The QL Today Mega CD
- 11 A Quick Update on Q-Word  
*Phoebus Dokos and Rich Mellor*
- 14 Your QL Today Subscription
- 14 The new WMAN *Wolfgang Lenerz*
- 16 Going To Extremes *Geoff Wicks*
- 18 PE Windows - The Orthodox Way  
*George Gwilt*
- 23 The new WMAN colours, and how to use them from Sbasic with QPTR  
*Wolfgang Lenerz*
- 27 Gee Graphics! (on the QL?) - Part 32  
*H. L. Schaaf*
- 38 A comment on David Denham's Clocking In Part 3  
Listing No.3 (QLT Vol.7 iss.1 pp. 47-50)  
*Phoebus R. Dokos*
- 39 Programming with QPTR - Part 4 -  
The level II pointers *Wolfgang Lenerz*
- 44 TK2 on MAC QL Emulator *Al Boehm*
- 45 STOP THE PRESSES: Aurora GD2 is (Finally) here!  
*Phoebus Dokos*
- 48 A short Visit of XMenu - Part 5  
*Jérôme Grimbert*
- 53 Obituary
- 53 Byts of Wood *Roy Wood*

## Advertisers

*in alphabetical order*

D & D Systems . . . . .	21
Jochen Merz Software . . . . .	47
Phoebus R. Dokos - Quantum Leap Software. . . . .	13
QBranch . . . . .	40, 41
Quanta . . . . .	51
RWAP . . . . .	31
W.N. Richardson (EEC) . . . . .	35
TF Services . . . . .	17
Geoff Wicks . . . . .	15

# QL Today

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We welcome your comments, suggestions and articles. YOU make **QL Today** possible. We are constantly changing and adjusting to meet your needs and requirements. Articles for publication should be on a 3.5" disk (DD or HD) or sent via Email or into one of the JMS-BBS's. We prefer ASCII, Quill or text87 format. Pictures may be in \_SCR format, we can also handle GIF or TIF or JPG. To enhance your article you may wish to include Saved Screen dumps. PLEASE send a hardcopy of all screens to be included. Don't forget to specify where in the text you would like the screen placed.

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- Issue 1: 30 April
- Issue 2: 30 June
- Issue 3: 30 August
- Issue 4: 30 October
- Issue 5: 30 December
- Issue 6: 28 February

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The first QL magazine cover CD!

Colour drivers for Aurora!

SMSQ/E version 3 imminent!

New Window Manager!

Two desktop GUI systems in advanced development!

Jon Dent's soql TCP/IP system now has PPP protocol  
(i.e. work on it is now well advanced!)

How much more good news can we expect in one month!

It has been a very positive period indeed recently, with a lot of activity.

The SMSQ/E sources are out in the hands of developers and Wolfgang Lenerz is at the centre of it all.

Marcel Kilgus is putting in a lot of work on SMSQ/E and the Window Manager.

The Turbo Compiler and associated development systems like TurboPTR and CPtr are being developed by George Gwilt.

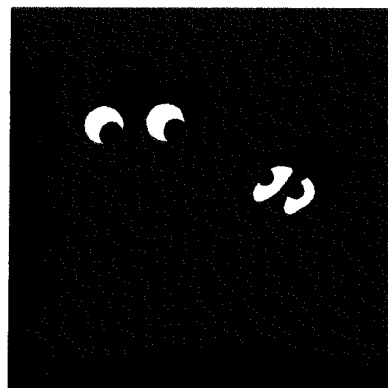
We have quite a few CD-ROMs of QL software.

This all sounds like I am trying to go out of my way to be positive. What the hell, I am. It's nearly 20 years since the QL came to being and how many computers from that era are in the situation of the QL today? A solid user group, advanced computers like the Q60, such a choice of emulators for other computers...how much more could I say?

Now, as we enter 2003 on such a high note for the QL, let us just sit back and savour the QL scene.

Oh, and enjoy the CD while you're at it - I sincerely hope the mountain of information on it comes in useful to someone!

**SAD QLERS DEPT.**



"Don't you think that QLing in the dark is taking this love of black computers a bit far, Dilwyn ???"

Cartoon

# NEWS

## New NESQLUG website address:

The website has moved, so please update your bookmarks:

<http://www.dokos-gr.net/~nesqlug/>

## Phoebus Dokos (Quantum Leap Software) News:

1. I have come across a huge cache of EDO Ram SIMMs for use with your Q40/Q60s and older PCs with QXLs. These come with a 3 year warranty and come in 16Meg (For your Q40/Q40i/Q60) and 64Meg (For Q40i/Q60) varieties. The prices however are EXTREMELY LOW... You can get 128 Megabytes for what the price of 32 Megabytes usually is. You have to hurry as these are running out very fast! Even European customers can take advantage of this as priority shipping is a flat US\$ 5 for up to 1 Gbyte of RAM.

2. Quantum Leap Software is now an official distributor for SMSQ/E and RWAP Software! Price lists can be found on our website

<http://www.dokos-gr.net/>

- currently under construction...

For more information:

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**USA.**

Tel. +1-724-464-0199,

email: [phoebus@dokos-gr.net](mailto:phoebus@dokos-gr.net)

## Use of GD2 - Updates

**George Gwilt writes:**

The following of my programs can make use of GD2:

**TurboPTR** - allows production and use of GD2 sprites/blobs/patterns

**gsv\_task & svscr\_task** - produce a "partial save area" file ( \_PSA)

**pr2win\_task** - prints \_PSA files on the screen and allows moving and resizing of these.

**psa2pat\_task** - will turn a \_PSA file into a sprite/pattern

**CPTR** contains a function enabling a PE program to be put to sleep with a GD2 sprite as the button.

All these are available on the SQLUG website - [www.jms1.supanet.com](http://www.jms1.supanet.com)

In addition to them I gave Dave Walker my suggestions as to GD2 entries for C68. As a result GD2 can be accessed by C68 programs.

[geo.gwilt@argonet.co.uk](mailto:geo.gwilt@argonet.co.uk)

## News from Marcel Kilgus

A few people including myself are really working hard on the future of SMSQ/E. V3.00 will be so much better that I cannot even remember all details of it. WMAN is still undergoing heavy construction (by Wolfgang Lenerz and me), I fixed a 12 year old nasty bug in the PE (that caused the machine to crash when there's not much memory left) plus some additional works and Jerome Grimbert added many sprite modes (sprites can now be in any GD2 graphics format).

Furthermore there will be a 256 colours driver for Aurora from me, as you will probably read in a separate article.

Applications already get adapted to the new high colour WMAN. I've been working on Qpac2, some Qpac1 tools, DISA and some minor utilities. Other people like Wolfgang have started to adapt their programs, too.

I've been working on porting Text87 to mode 32, but due to reasons that could probably fill an own article this is a quite adventurous task. Text87 was for example developed on an Atari, i.e. I've written the code but can't even assemble it. There will be first results when the original author, Fred Toussi, has got his Atari out of the attic and built a new version. It's a bit like me writing the Aurora driver without having an Aurora, just worse.

Apart from all that I'm of course still heavily working on QPC. It has now an Aurora compatible 8 bit display mode, there are improvements in the DOS device, new commands to control the PAR->Printer associations and some minor fixes with probably more features to come.

In conclusion I think above are some pretty good reasons to stick with our system and wait for the big version 3, don't you agree?

## HELP!

**Giorgio Garabello**

On my website (<http://utenti.lycos.it/Sinclair>) there is now available HELP 1.1, a program to show hypertextual help under P.E.

You can download it directly form here:

<http://utenti.lycos.it/Sinclair/HELP11.ZIP>

This program is free.

This version fixes one bug during the startup loading the message table (this is a multi-language program by external file)

<http://utenti.lycos.it/Sinclair/www.sinclair-ql.it>

## Q-TRANS

*Dilwyn Jones*

Q-Trans v0.10 is now available from the Dilwyn Jones website. Recent developments to this file handling program have included the addition of a file statistics command where you can see file lengths, file types, file update and backup dates, improved operation with the DEV and SUB devices and a few workarounds to help those (like the author!) using QPC2 on a Windows 98SE system where you may run into problems if you have files and directories starting with the same few letters accessed over the DOS device, plus the addition of a rudimentary Trash can facility for non-destructive deletion of files - unlike normally deleted files, Trashed files may be recovered later. Discussions are taking place with a view to including a compatible Trashcan facility within the Jim Hunkins QDT desktop GUI system as well, so that the same system is used for both the forthcoming Launchpad and QDT systems.

<http://homepages.tesco.net/dilwyn.jones/software/freeware/freeware.html>

## SINCLAIRQL.INFO

*Javier Guerra*

Recently I have acquired the sinclairql.info domain name. The dominion aims now at my Web, but it has been acquired with greater intentions.

Months ago I proposed in this forum the idea to make a Web site that serves as entrance to the world of the QL in Internet.

My proposal tries to create a site with tools like PHP-Nuke or similars where the QL community can put record of its news, links, and new features.

The main advantage of this type of tool is that the Web site does not need any special attention on the part of webmaster, and the information is immediately reflected when it is introduced.

Also I believe that it would be a reference site from where to find the necessary thing with no need to go to the motors search.

I would like to know your opinion on the matter and to know if QL community would accept and support this initiative.

If your opinion is positive, I believe that I can have the site operative in few months, because it would want to make some tests before the site be in Internet.

Javier Guerra Sinclair QL Spanish Resources  
<http://sinclairql.info>

## QL Crosswords

While examining some old microdrive cartridges of mine recently, I came across a program called Crosswords by B. Otridge. Sadly, no contact address in the help files, but the program is quite impressive, allowing you to set up and solve crosswords, complete with a 12,500 word dictionary!

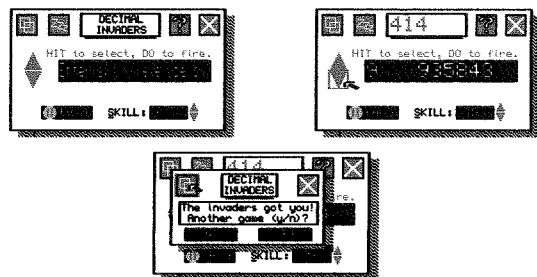
It might be interesting to try to contact Mr Otridge to see if he could be persuaded to allow this program to be put into P.D. as it's quite a good program.

Does any reader have a current contact address or telephone number for Mr Otridge?

## Decimal Invaders

This is a new pointer driven game from Dilwyn Jones, basically an emulation of an old calculator game where advancing hordes of numbers threaten to overwhelm your base unless you can match your gun to their identity (i.e. if an 8 is advancing, switch your gun to 8 and fire)! Fast and furious mouse action, guaranteed to wear out computer mice and give you 'mouse click finger'! Feedback from early users basically went something like "thanks for costing me several hours of work playing this game" so it's clearly a bit addictive! Part of the Launchpad suite, but released alone and available from the usual Dilwyn Jones website:

<http://homepages.tesco.net/dilwyn.jones/software/freeware/freeware.html>



## BASCONFIG V1.13

I have just released v1.13 of this Level-1 configuration block creator for QLiberator compiled BASIC programs. V1.13 is simply a version of the BasConfig editor with larger display window and a very minor bug fix.

The 34K zipped file is available for download from my QL Documentation page in the Assembler Stuff section for now, until my Other Software Page has a new home.

<http://homepages.tesco.net/dilwyn.jones/qldocs/qldocs.html>

## ProWesS Update

Joachim van der Auwera

A new version of ProWesS is available on my site. It contains a small fix when kerning is used in combination with an anti-aliased font.

Available from <http://www.progs.be/> under downloads

## News from Davide Santachiara

After a while I was eventually able to give a "light" update to my web site:

<http://www.geocities.com/dsantachiara>

Not a lot of work, I have just removed non-existing links and updated changed ones. People inter-

ested could give a look whether their web site is well referenced and described. If yours is not in just write me a short Email and I will include it.

I also remind that from my web site you can download the following freeware Ergon programs: ZeXcel (Spectrum emulator running under the PE) MasterBasic (utility for SuperBasic/SBasic programmers) Floppy Disk Utilities (recovery copy utility for DD/HD/ED disks) DEA intelligent disassembler plus some other (old) stuff.

We are also trying to organize the 10th (!) Italian QL meeting in 2003. From the last mail exchange with the QL traders it seems it will be sometime between mid September and mid November. More news as soon as final decisions will be taken.

## The QL Today Mega-CD

Welcome to the QL Today Mega CD. This is the first time that we have had a CD ROM on the cover of the magazine and we have, with the help of Dilwyn Jones, Darren Brannagh and many, many others, brought you what must be one of the most useful disks you will ever have.

CD ROMs have been a format supported by PCs and other mainstream machines for some time but we have only had access to them via the various emulators, (QXL, QPC2 etc.) until recently. A couple of issues ago we gave away a disk containing programs that allow access from the Q40/Q60 and Qubide v 2.01 equipped QL systems. Now is the time to use them!

The disk has directories which are accessible from the PC/MAC/LINUX and also contains a QXL.WIN file especially for QL access.

There are two main Directories:

**DOCS** - This directory contains most of the QL documentation files in a variety of formats. We have supplied a freeware copy of the Adobe Acrobat reader to view the .pdf files.

**EMULATORS** - This directory has all of the current QL emulators in it. The commercial emulations are represented as demo versions and the free emulators come fully functioning. We have also included a whole host of utility programs to go along with it.

**QXL.WIN** - This is the QL Readable section. Check that QPC2 is configured to see the CD ROM drive as a valid WINx\_ file (i.e. WIN1\_ to WIN8\_). The QXL will only read this file if the CD ROM letter is no higher than 'J'. Other systems will have to use the CD utilities provided on the last cover disk or downloaded from the Internet. Both of the above directories have subdirecto-

ries in them and their contents is described below. Space restrictions mean that these descriptions are short but this CD will be voyage of discovery. We hope that you will find it interesting and we know it will be the most useful CD you have.

### DOCS

Inside this subdirectory you will find the following:

**68kpm** - Addendum to the M6800 manual - CPU documentation in Adobe Acrobat Format

**acro** - Adobe Acrobat Reader program needed to read files in the Adobe Format (freeware).

**ascii** - description of the QL's ascii format and a short program called charset\_bas to print it out.

**aurora** - Aurora manual in Adobe Acrobat, Microsoft Word, .rtf and .txt formats.

**btfrm** - Button Frame Utilities for people who do not have QPAC 2 cfc68 Config Block Creator for 68

**cga** - Monitor pinouts for connecting CGA monitors to the QL

**config** - Configuration Information Specification

**config2** - Config level 2 Information Specification

**ctutor** - 'C' tutorial text

**dbhw** - Dennis Briggs' QL Interfaces articles from IQLR  
**devs** - DEV\_DEVICE and DEV\_USE Instructions - Dilwyn Jones

**diren** - DiRen QL Keyboard interface Manual

**discs** - DiscOver Manual - Dave Walker

**display** - Suite of programs with Instructions for extended display use - Dilwyn Jones

**do** - Instructions on the use of the DO command - Al Boehm

**eb** - Extract from the Easybase manual

**epson** - Epson ESC/P2 Printer Documentation.

**eptutor** - Easypointer Tutorial. Description of the use of Easypointer with many examples

- errors** - Error trapping in SuperBasic by David Denham
- expand** - Guide to QL expansion by Dilwyn Jones
- extras** - Lists of additional Keywords from toolkits.
- exts** - Filename extensions for the QL together with the programs they relate to.
- filehdr** - Description of QL File Headers
- foxpro2dbs** - Basic listing and text files to convert QL data to PC formats
- fpu** - Floating point utilities by George Gwilt
- glossary** - GLOSSARY OF ABBREVIATIONS AND TERMS by Dilwyn Jones
- graphics** - List of QL Graphics Formats with description.
- hermes** - Hermes Manual from TF Services
- hotkeys** - Description of the HOTKEY System II
- HPpcl** - HP pcl printer codes
- html** some descriptions of QXL.WIN and QIMI mouse but the links for this are broken.
- htmlspec** - Various documents about the HTML specifications
- htmltut** - HTML Tutorial
- hw** - Keith Mitchell's Hardware documentation in plain text format.
- ipc8409** - Description of the format of the 8409 chip on the QL
- jmrom** - Description of the make up of the JM ROM
- joystick** - Instructions on using the Atari Joystick with the QL
- jsrom** - Description of the make up of the JS ROM
- machine** - Assembler and Basic listing to allow programmers to test which machine the code is running on.
- mcodetut** - 68000 MACHINE LANGUAGE COURSE PART I by Mark van de Boer
- metadrvs** - Nasta's metadrivers text
- miracle** - Miracle Hardware Manuals
- modems** - 9600 baud modem info and comms glossary
- online** - Bill Cable's Online tutorial from 1996
- peig** - Pointer Environment Idiots Guide - N. Dunbar
- Peightml** - Pointer Environment Idiots Guide in HTML
- picfiles** - Description of PIC file format
- printerd** - Description of the Printer\_DAT files used by Quill ec.
- psions** - Description of the file format used by Abacus and Quill (also contains Text Tidy)
- qdoshints** - Description of undocumented feature in QPTR
- qdosint** - QDOS Internals by Norman Dunbar
- qdoslowl** - This document is a collection of different documents from different sources dealing with low-level details of the QL and QDOS.
- qhj** - QL Hackers Journal by Tim Swenson
- qimi** - Information on the QIMI Mouse interface
- qlmanual** - The QL Manual in Txt format
- qlserv** - QL FAQ mostly dated circa 1994
- qlw** - QL World Index
- qmenu** - Dilwyn Jones' description of menu\_rext
- qpac 2** - The Q Branch QPAC 2 supplement
- qpc** - QPC Keywords
- qplane** - Qplane manual from Qubbesoft
- qua** - Quanta Newsletter index from vol 1 to vol 8
- qubide** - Qubide Documentation and manual from Qubbesoft
- Qx0** - SMSQ/E manual for Q40
- QXLwins** - QXLWIN file format
- ramdisks** - What is a ramdisk? - by Dilwyn Jones
- recursion** - Description of recursion with example programs (the programs are QL BASIC)
- reviews** - Series of reviews by Timothy Swenson of various QL programs. In MS Word, rtf and txt formats.
- sbsbook** - SuperBasic Source Book - by Timothy Swenson
- sdump** - Instructions on how to use the SDUMP command by Dilwyn Jones.
- serials** - Description of the QL serial ports with wiring instructions for making a cable to use with SERNET and other transfer operations.
- sernet** - SERNET Manual - by Bernd Reinhardt. With a tutorial/review by Dilwyn Jones
- servman** - QL Service Manual OCR'd by Andy Dansby and first published in QL World. Contains many circuit and block diagrams.
- sms** - History of SMSQ by Tony Tebby
- smsqe298** - Part of the SMSQ/E user manual that deals with the new colour drivers including the palette.
- smsqemod** - Description of the SMSQ/E modules by Tony Tebby
- sorting** - Arborescent Sorting - by Stephen Poole. Discussion RADX sort routine.
- stack** - DJToolkit and The 'Maths Stack' by Norman Dunbar. Extract from an article published in QReview.
- stella** - Description of the Stella Operating System as envisioned by Tony Tebby. In HTML Format.
- sysvars** - System Variables List In MS Word, rtf and txt format.
- txtql** - Text format depiction of the QL In MS Word, rtf and txt format.
- tfs** - Manuals for the TF Services range of products. Includes Hermes, SuperHermes, i2c, romdisq, and Mplane. Also includes keyboard extensions. In MS Word, rtf and txt format.
- thingfo** - The Thing Information System. QLiberated program and manual in txt format.

**thing05** - THING Documentation in txt format  
**thingqp2** - THING List from German QPAC 2  
**things** - THING articles from QL Today by Jochen Merz. In MS Word, rtf and txt format.  
**time** - Articles about time related issues by David Denham (from QL Today). Includes time related example QL SuperBasic Programs.  
**tk2** - Toolkit 2 manuals  
**tk2tut** - Toolkit 2 tutorial by Stephen Bedford In MS Word and txt format.  
**tra** - TRA Command described by Simon Goodwin (QL World August 87) In MS Word, rtf and txt format.  
**ukser** - QL Serial Ports by Peter Recktenwald  
**um68040** - Motorola 68040 User Manual in Adobe Acrobat format. Erratum in Txt format.  
**unsorted** - Collection of PD files, programs and text. Explore!  
**whathw** - What Hardware - programs and manual to determine which hardware platform you are running on. In MS Word, rtf and txt format.  
**wordview** - program for users without MS Word. Allows them to view MS Word Files. With Manual. In MS Word, rtf and txt format.  
**zips** - Contents of this CD in .zip format  
**zipunzip** - Instructions on how to use the unzip program. In MS Word, rtf and txt format.

## EMULATORS

Some of the files in this subdirectory are duplicates of those in the Docs subdirectory. I will only describe the contents of those which are not. I was tempted to remove the duplicate files when making a compilation of the two CDs but I decided to leave them in there for completeness.

**apple** - Q-emulator LITE for the Apple computer. Freeware cut down version of the commercial program.  
**archiver** - Programs for unzipping files on various platforms. Amiga, Apple, Atari, DOS, LINUX, and WINDOWS  
**archives** - Zipped files found on this CD.  
**atari** - QLEM v 1.45 Atari QL emulator by Johan Klockers  
**BASIC** - A small collection of SuperBASIC programs for you to try out the SuperBASIC or SBASIC interpreters in these emulators. Further S\*BASIC (a contrived term to cover both SBASIC and SuperBASIC) programs may be found in the ZIPS directory on this CD.  
**ADAPT\_bas** - Remove left margin and control codes from text files  
**AREAS\_bas** - A program to calculate area of irregular shapes

**CALENDAR\_bas** - Uses Zeller's Congruence formula to generate calendars  
**CHARSET\_bas** - Simple program to display QL character set  
**COMPARE\_proc** - A BASIC procedure (by Matthew Spencer) to compare two files  
**CONVERT\_bas** - Program to convert from/to Intel Hex/Binary format  
**INDENT\_bas** - Indent loops etc within structured BASIC programs  
**LABELLER\_bas** - Label typewriter program  
**LINECOUNT\_bas** - Count number of lines in a text file  
**PALETTE\_bas** - Display mode 4 and mode 8 colour palette and colour numbers  
**SCRPAT\_bas** - Short screen art program, by Mike Billington  
**SEARCH\_bas** - A binary search for variable length record files  
**TASKFORCE\_bas** - Utility to 'protect' memory from Psion programs (QL World)  
**TEXT2EXP\_bas** - Convert text files to Psion Export format  
**TRANSLATE\_from\_PC\_bas** - Translate character codes of a PC file to QL equivalents  
**TRANSLATE\_to\_PC\_bas** - Translate character codes of a QL file to PC equivalents  
**TXT2HTML\_bas** - Translate plain text file to simple HTML file  
**UNCR\_bas** - Remove carriage returns from text file  
**bmp2pic** - Program to convert Windows Bitmaps to QL Pics  
**DIYTC** - D.I.Y. Toolkit by Simon Goodwin. Complete series from QL World.  
**info** - Various Text files with Information on QL Hardware and Software.  
**qdos4amiga** - Software QDOS Emulator for the AMIGA - This is a major reworking of Rainer Kowallik's QL emulator for the Amiga.  
**qdosclassic** - QDOS Classic - complete source and binaries - Mark j. Swift v 3.25.  
**QDOSHDR** - Program to change the headers of executable QDOS files which have been stored in the DOS environment.  
**Qemulator** - QL Emulator for Windows by Daniel Terdina. Contains Minerva 1.89 Rom version. This is a demo version and the full version requires registration.  
**Qlay** - Freeware QL Emulator for Windows 95 DOS and LINUX - by Jan Venema  
**qlfloppy** - QL Floppy disk reader for DOS



**QLSSS** - QL Sampled Sound System by Simon Goodwin.

**QL Tools** - QL Tools - facilities for reading and writing QDOS floppies on LINUX, Windows, NT, OS/2, MSDOS and Windows. qltools v2.4 is based on the qltools program of Giuseppe Zanetti, with modifications by Valenti Omar and Richard Zidlicky. v2.4 has been almost entirely rewritten by Jonathan R Hudson.

**QPC1** - Demo version of the original QPC emulator for DOS by Marcel Kilgus.

**QPC2v3** - Demo version of the current version of QPC2 for Windows 95/98/NT/ME/2000 and XP by Marcel Kilgus.

**qxltool** - qxltool is a program to access QXL.WIN files from a native operating system (Linux, DOS, Win 3.x, Win 95, NT, OS2, or even QDOS). Written by Jonathan Hudson with help from Richard Zidlicky.

**qxlwinex** - QXL.WIN Explorer by Frederic van der Plancke. Program to explore and extract files from QXL.WIN files. Will run under Windows 95/98/NT/ME/2000/XP

**rext** - Some runtime extensions for use with the QL Emulators CD-ROM. The Boot programs have a line starting with device\$=FLP1\_. Change this line to suit the device from which the file is to be loaded, e.g. if loading the toolkit from your CD-ROM drive, which is WIN2\_, you would change this line to read device\$='Win2\_Rext\_' (the toolkits are loaded from the Rext directory on this CD).

**Dev\_Boot** - Short BASIC program to install the DEV driver

**Dev\_Rext** - Code to provide a DEV driver (don't use on QPC)

**Dyn\_Ramdisk\_Boot** - Short BASIC program to install dynamic ramdisk

**Dyn\_Ramdisk\_Bin** - Dynamic ramdisk code file

**Sdump\_Boot** - Short BASIC program to install SDUMP facility

**Sdump\_Rext** - Code file to provide SDUMP screen dump facility

**Static\_Ramdisk\_Boot** - Short BASIC program to install the static ramdisk

**Static** - Ramdisk\_Boot Static ramdisk code file

**Toolkit\_Boot** - Short BASIC program to install the Toolkit extensions

**Toolkit\_Rext** - The Toolkit 2 extensions, v1.03

**Turbo\_TK\_Boot** - Short BASIC program to install Turbo Toolkit

**Turbo\_TK\_Code** - Turbo Toolkit v3h27

**Turbo\_SMS\_Boot** - Short BASIC program to install Turbo Toolkit(SMSQ version)

**Turbo\_SMS\_Code** - Slightly shorter version of Turbo Toolkit for SMSQ

**TURBO** - Turbo Toolkit. v4.5. Manuals originally written by Simon Goodwin and modified by George Gwilt. Code modified by Mark Knight, George Gwilt, David Gilham. Includes Turboopr.

**UNLIB** - Simple front end for the Info unzip program. Contains a pointer driven version written by Dilwyn Jones.

**uqlx** - UQLX QL Emulator for LINUX by Richard Zidlicky

**wxqt2** - Graphical front end for qltools and qxltool by Jonathan Hudson. Runs under W95/98/ME/NT. Not recommended for W2000 or XP due to the modified NT file system used by these programs. Needs Modification to use this system. Sources included

**zips** - Large Number of Zip files including clipart and compressed versions of many of the files found above.

## QXL.WIN FILE

The QXL.WIN file on this CD should be directly readable from QPC/QPC2 and the QXL. Other systems may need to use the QXL.WIN Explorer or QXLtool programs that can be found in the PC subdirectories here.

Again I would like to say that a lot of these files are duplicates of the ones in the PC subdirectories but, again, for the sake of completeness and for the ease of access from a 'real' QL platform I have included it all here.

This, then, is a listing of the files you will find in the QXL.WIN file.

## ARCH - QL ARCHIVERS DIRECTORY

This directory contains QL versions of most of the compression/decompression archivers for the commonest archived files you'll find on the internet and bulletin boards. Some are quite old and may not run correctly on the more recent emulators or operating systems. Although most of these programs come complete with instruction documents, many of the archivers will display a help screen if started with no parameters.

## Directory and Content

- ACP**-> Archivers Control Panel v4e01 by Thierry Godefroy. This is a pointer driven front end for the QL archivers Arc, Lha, Lhq, Zip, Zoo and Tar. Instructions: **ACP\_HELP**
- ARC**-> Arc archive utility v5.12 by Jeremy Allison. Instructions: **ARC\_TXT**
- ARCHIVER**-> Archiver archive program v1.0[5], by Richard Kettlewell, 1992. Instructions: **ARCHIVE\_TXT**
- ARCHVR**-> Pointer driven archiver, by Peta Jäger, similar in principle to the Ralf Biedermann archiver program. Instructions: **ARCHIVER\_HLP** (German language)
- BZIP2**-> Bzip v1.0.1 by Thierry Godefroy. Slightly more efficient than zip and gzip, but needs more memory (min. 4MB). Instructions: **QDOS\_TXT, README** and other files
- CG**-> Compress and Gzip 1, by Peter van Helden. Instructions: **README, GZIP\_TXT, COMPRESS\_TXT**
- COMPACT**-> Compact and Uncompact utilities by Jan Bredenbeek. Instructions: (none)
- COMPACTE**-> French text file compression utility, from QLCF library. Instructions: **COMPACTE\_doc** (English), **COMPACTF\_doc** (French)
- GZIP**-> Gzip 1.2.4 (third release) by Thierry Godefroy. Instructions: various files in **DOC\_** subdirectory
- HAR**-> Har archiver from Franz Hermann, 3/3/92 release. Instructions: **HAR\_README** (English), **MAUSTAUSCH\_TXT** (German)
- LHA**-> Lha archiver from Franz Hermann, 3/3/93 release. Instructions: **LHA\_TXT**
- LHQ**-> Lhq archiver (LHx compression archiver for QL) v1.00. Instructions: **LHQ\_TXT**
- LHx**-> LHarc archiver for QL, v0.02 by Franz Hermann. Instructions: **LHx\_README**
- OCTAGON**-> A suite of archiving programs (in English) by Octagon. For those who don't read German, EXEC the **\_exe** programs with no parameters for English help screens. Instructions: Individual text files for each utility (in German)
- RBARC**-> Ralf Biedermann archiver, various versions and utilities. Instructions: **ARC\_DOC, arcE\_doc, ARCNOTES\_doc, ARCTOOL\_doc, ARCTOOL2\_doc, ARCUTIL\_doc**
- QARC**-> QArc archiver v1.00 by Rob Kooiman and Sander Plomp. Instructions: **QARC\_doc**
- QZ**-> Converts MSDOS PKZIP files to QL Unzip. v2.0 by Jan Bredenbeek. Instructions: **QZ\_TXT**
- SMASH**-> Smash v0.10 by Dr Carlo Delhez. Self-extracting job compressor. Instructions: **SMASH\_TXT**
- TAR**-> Tar v0.05 by Jonathan Hudson and Thierry Godefroy. Instructions: **README, README\_SMS** and other files
- UNARC**-> Unarc file extractor and decompressor v1.01 by Jan Bredenbeek. Instructions: **UNARC\_DOC**
- UNCPT**-> Uncpt file extractor. Instructions: **UNCPT\_TXT**
- UNRAR**-> Unrar v1.01 file uncompressor, for .RAR files created with v1.5. of RAR. Ported to QL by Derek Stewart. Instructions: **README, QDOS\_TXT, LICENSE\_TXT, FILE\_ID\_DIZ**
- UNZIP**-> Infozip Unzip v5.41, ported to QDOS/SMSQ by Jonathan Hudson. Instructions: **QDOS\_IZREADME\_TXT, README, UNZIP\_DOC** and others
- ZFLATE**-> Inflate/deflate - zlib demo and compression utilities v0.3, ported by Jonathan Hudson. Instructions: **ZFLATE\_TXT**
- ZIP**-> Zip v2.3 (Info-zip) ported by Jonathan Hudson. Instructions: **README, MANUAL, IZREADME\_SMS** and others
- ZOO**-> Zoo v2.1 and utilities for the QL, release 11/12/92, by Franz Hermann. Instructions: **README\_TXT, FIZ\_MAN, ZOO\_MAN**
- ZOO2392**-> Slightly earlier release of Zoo v2.1 for the QL by Franz Hermann. This version includes **SOURCE\_ZOO**. Instructions: **README, FIZ\_MAN, ZOO\_MAN, ZOO\_README**
- BASIC** - Selection of superBasic utility programs. See descriptions in the Emulators section above.
- DIYTC** - D.I.Y. Toolkit by Simon Goodwin. Complete series from QL World.
- DOC** - This subdirectory contains many of the files from the DOCs subdirectory listed above. Some of the HTML files in here will not work with the PROGS Reader. To view these files use the HTML versions on a PC/MAC or LINUX.
- html** - QL documentation in HTML format.
- htmlspec** - htmlspecs in text format.
- htmltutor** - a tutorial on HTML. The links seem broken here so some repair may be needed to get this running. A good exercise!
- info** - Lots of QL information in text file format complete with viewer. Also includes some BASIC examples and executable programs.
- Manual** - QL Manual in scanned text format.

- Miniview** - This program is a very simple text file viewer which is adequate for viewing simple text files like README files. It is freeware.
- peig** - Pointer Environment Idiots Guide by Norman Dunbar
- QDOSHDR** - Contains programs to remove or add QDOS file headers from executable QL programs, normally used where executable QL programs are to be stored in a non-QDOS/SMSQ environment, e.g. on a DOS/Windows hard disk.
- QLSSS** - QL Sampled Sound System by Simon Goodwin.
- rext** - Some runtime extensions for use with the QL Emulators CD-ROM. The Boot programs have a line starting with device\$='FLP1\_'. Change this line to suit the device from which the file is to be loaded, e.g. if loading the toolkit from your CD-ROM drive, which is WIN2\_, you would change this line to read device\$='Win2\_Rext\_' (the toolkits are loaded from the Rext directory on this CD).
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- Turbo\_TK\_Code** - Turbo Toolkit v3h27
- Turbo\_SMS\_Boot** - Short BASIC program to install Turbo Toolkit(SMSQ version)
- Turbo\_SMS\_Code** - Slightly shorter version of Turbo Toolkit for SMSQ
- SPECULATOR** - Spectrum Emulator for the QL - Includes Tasword File converter.
- UNLIB** - Simple front end for the Info unzip program. Contains a pointer driven version written by Dilwyn Jones.
- Unzip532** - Unzip v5.32
- Unzip540** - Unzip v5.40
- Viewer** - Dilwyn Jones Viewer for plain text files.
- That is is the end of the subdirectories. The QXLWIN file also has some files in its root directory.
- BOOT** - A Boot file with a short message from the editor of this magazine.
- EXTMAN\_BAS** - A short BASIC program which provides a menu driven front end to select and install the various extensions files provided in the REXT\_ directory on this CD-ROM.
- EXTMAN\_DOC** - Documentation in Quill format
- EXTMAN\_TXT** - Documentation in txt format
- QH\_BAS** - QH is a pair of SuperBASIC programs to assist with the storage and restoration of QDOS executable programs on non-QDOS formatted media. No doubt you are aware that if you store type 1 (executable) programs on such media, the executable file header is lost (including the essential program dataspace) so the program will not execute properly.
- QH\_txt** - Instructions for QH\_BAS
- README** - Licence notices and general information about the files on this CD ROM.

## A Quick Update on Q-Word

By Phoebe Dokos and Rich Mellor

Q-Word is closer to becoming a reality with every day that passes. The pleasant surprise of the GD2 drivers for the Aurora, affected the development of Q-Word as well, which will be able now to target a

bigger audience than originally anticipated. Rich has been hard at work, implementing a new graphics toolkit that will make the transition and the possibility of using the extra colours on non-SMSQ/E equipped ma-

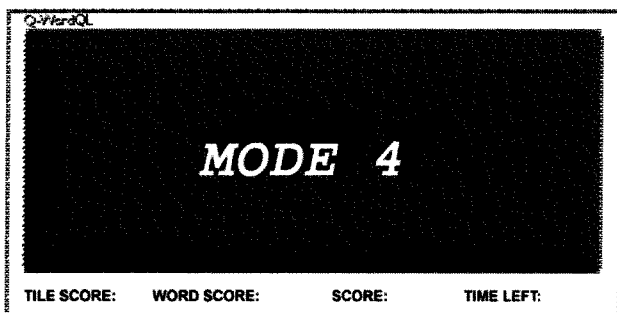
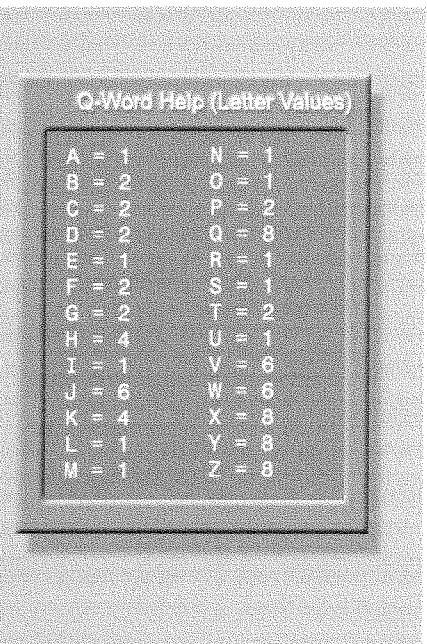
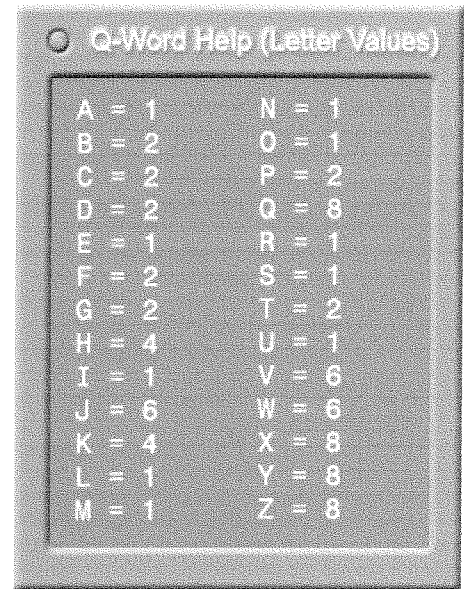
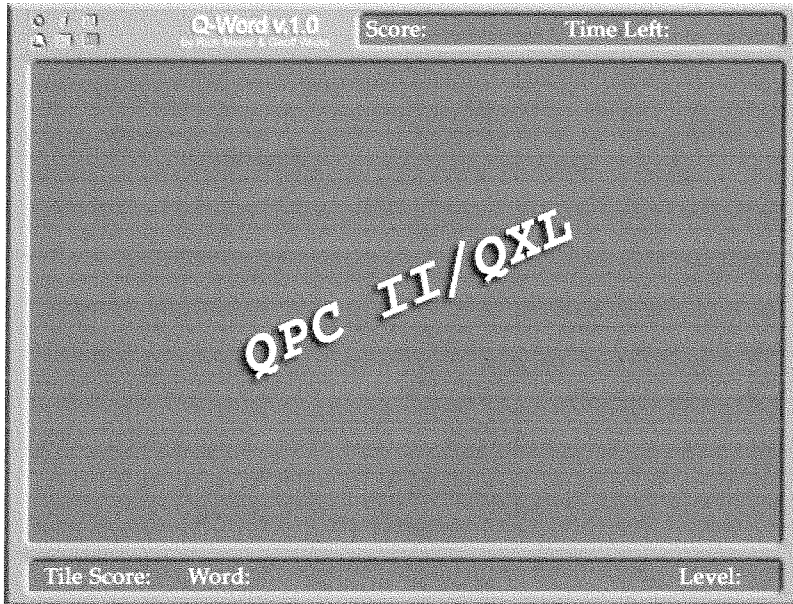
chines (ie. QDOS-Classical). The newest additions to Q-Word's development is apart from the Aurora compatible version that is now possible, the adaptation of the original game screen designs to the Thor's Mode 12 and QL mode 4! Further completed tasks is writing the sounds and music for the Game as well as 99.9% of the graphics. The game now is

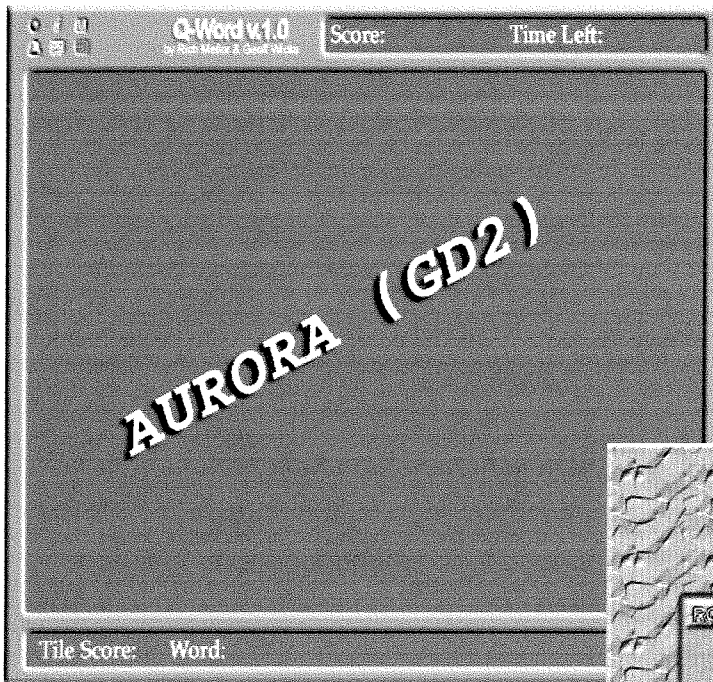
enhanced by 3 separate levels of difficulty, as well as complete mouse control. We will be shipping Beta test versions to users for feedback very soon and the final product will follow soon after that.

For now we are showing you what (more) to expect of Q-Word. All the pictures are ACTUAL screenshots of the game board, high score table or help menu.

A target price has not been specified yet, but a bundle of Q-Word with the MEGA dictionary from RWAP software is very probable.

As picture is worth 1,000 words, we will let you enjoy "the view"!





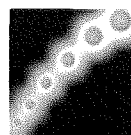
---

## **SMSQ/E v. 2y99** **with GD2 available for the Aurora soon!**

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- *All Q-Celt / DJC CD Roms is stock*
- *Special LEGAL North American Edition of the QL Emulators CD*
- *IDE CompactFlash Card readers (Special order only)*

### **Coming Soon:**

*Complete SMSQ/E User's manual (Available as set with all SMSQ/E purchases, or by itself)*



**Quantum Leap**  
software

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The next issue will be the last one in the current volume. We have managed to hold the price steady for the last two years but rises in postal rates and printing costs are forcing us to look into the pricing for the next year.

One cost which we can avoid is the sending out of reminder letters and another is having to print extra copies of the first issue of the next volume to cope with late subscribers.

We are therefore asking you all to re-subscribe with this issue. This will give us advance notice of the numbers we need to print for the next issue and also mean that the late subscriptions notices can be sent out in the next issue.

As an incentive, and a way of saying 'Thank you' to our loyal readership we are going to hold the cover price at its current level until the end of March. This will mean that everyone who subscribes before April 1st will be able to do so at the lower rate.

Thank you for your support over the last seven years. Those of us who have made QL Today happen look forward to another year of QL Today and we hope that you do to.



## The new WMAN

**Wolfgang Lenerz**

Those of you who can follow the QL Users mailing list will know that a new WMAN for SMSQ/E is about to be released. Maybe it is already out by the time you read this... So, if you have a machine running SMSQ/E now is the time to upgrade!

### So what is it all about?

WMAN is the window manager part of the Extended (or "Pointer") Environment. It's what allows the programmers to draw windows on the screen easily and read the pointer in an easy and fixed way.

Up to now, WMAN was geared towards a QL-type display, i.e. 4 or 8 colours. Marcel Kilgus has extended it in such a way that it can now display many more colours – those which are available to SMSQ/E users in high colour mode. You will find another article in this issue of QL Today giving out some more technical details on how this is achieved and how one can use the new colours.

Let's focus here on what is (will be) new to the user/programmer:

### 1 - The new colours

Well, that's pretty obvious. You can now have WMAN windows that use the high colours. The colours are "only" coded on 15 bits – the 16th bit is used as a switch to tell the system what kind of colour we're talking about. So now you can have a pointer program with, for example, yellow ink on a mauve background (if your eyes can stand it).

Don't be astonished that the new colours are only coded on 15 bits. There is actually no system on the QL market that displays more than 16 bit colours anyway (yes, all the high colour machines, QPC, Qx0, QXL) only display 16 bit colours, even if you specify the colours as a 24bit value!

Colours can be indicated to be 15 bit colours, colours taken from a grey scale, colours taken from the normal palette used in the system, or from palette stipples, or from the system palette.

There have been previous articles on exactly what format the colour word must take to specify the (type of) colour to be used (e.g. QL Today, Vol. 7, issue 4, page 6 and following), so please refer to that for more technical information.

### 2 - The system palette

This is an exciting development. Essentially, it will allow future programs to be written in a colour independent mode. Thus, for example, instead of specifying a colour value as such for the paper of a window, one simply indicates that one wants to use the paper colour for the main window (whatever that may be).

The user himself then sets up his system palette in the way he wants it. Say that he indicated mauve as the paper colour to be used for the main window background, and orange for ink (OK, so that user has bad taste...). Then the application will appear in glorious (?) mauve. If the user indicated a more decent colour, the application will use that. This ensures that the user may have applications that have a common look – a bit like the colourways QPAC2-type applications have today.

Of course, no application HAS to use the system palette – if a programmer wants to make sure that his application looks the same on any new WMAN system, he can continue to code "hard" colours into his program!

### 3 - High colour sprites

This is a common development by Phoebus Dokos, Jérôme Grimbert and Marcel Kilgus – high colour sprites are now available on all high colour systems, with a profusion of sprite modes – however they should all display correctly on the different machines!

I personally will only develop sprites in 2 modes: 24 bit mode and QL mode (to keep the software compatible with older WMANs or machines that have no high colour).

Together with this, the sprite cache handling has been much improved, so that big sprites can now be displayed correctly – notably the "dragon" sprite in "Brainsmasher" is displayed in all its glory again.

### 4 - Adaptable sprites in loose items

It is also possible to have a loose item automatically display different sprites depend-

ing on the status of that item – notably the sprite in the item can change when the pointer is over the item.

### 5 - Availability

So when will this all be available? At time of writing (January), this isn't quite fixed yet, but a launch during February is foreseen.

The new features will be available in SMSQ/E version 3.00 – you can get an update at your usual dealer.

The sources for this will also be made available as soon as everything is out.

### Now, at the end, just a few words of thanks:

Marcel Kilgus has done an enormous amount of work. My hat off to him. Perhaps you will be able to appreciate his performance when you know that he

not only did the QPC version for the new WMAN, but that he did it in such a way that it would be totally compatible even with the Qx0 – despite the fact that he doesn't have a Qx0 to work with. All I had to do was to drop in the files he sent to me, and it worked straight out of the box. Great stuff.

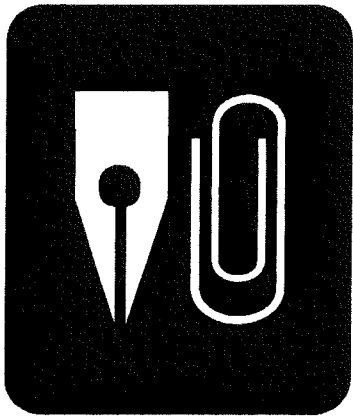
The same was true for Jérôme Grimbert's work on the sprites (it just needed to be adapted for QPC) and the sprite cache.

Phoebus Dokos has designed the new high colour system sprites – nice!

This is an example of what can be achieved when the sources are open to anyone who cares to look at them.

I hope that it is but a start for more great things to come (and for a start, it is a GREAT start)!

Thanks guys!



**JUST WORDS!**

<b>1994</b>	SOLVIT-PLUS
<b>1995</b>	QL-THESAURUS
<b>1996</b>	STYLE-CHECK
<b>1998</b>	SPELLING-CRIB
<b>1999</b>	QL-2-PC TRANSFER
<b>2000</b>	POUNDWARE RANGE
<b>2001</b>	QL-RHYMES
<b>2002</b>	AUTO-GRAPH
<b>2003</b>	?O?A?U?A?? ?A?A?A?E

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*email: [geoffwicks@hotmail.com](mailto:geoffwicks@hotmail.com)*

*Web: <http://members.lycos.co.uk/geoffwicks/justwords.htm>*

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# Going To Extremes

Geoff Wicks

Have you ever pushed your word processor to its very limits? I doubt it. If you are like me you rarely type a document longer than 2,000 words. Even my Just Words! manuals are only in the low thousands. But at the moment I am working on a document whose length is over 2,000K. That works out at 195,000 words over 2,962 pages. What word processor do you use to cope with a document like that? Surely this is a task for the powerful all whistles and bells PC software and not simple QL programs.

Most QL users would agree it is not a job for Quill, but let's try. It starts loading, but stops at 4,669 words with an "out of memory" message. The document is an alphabetical list of words and we have come no further than words beginning with "ach" on page 87. You can increase the memory available to the Xchange version of Quill using a command such as:

```
ex flp1_xchange;"1024"
```

I tried this but still came no further than the 4,669 words and had neither the time nor desire to experiment further.

Now let's try my preferred word processor for daily use, Text87. This starts to load the file, but after some time gives an error message saying that more memory is required. (Interesting to note that Text87 does not check the length of a file before loading.) The default memory of Text87 is 32K, but this can be simply changed using F3, File, Room. When we do this we find the maximum memory permitted is 2048K and my document needs over 2,132K.

Our last hope is Perfection. It loads the document without difficulty. Now we'll try pressing Ctrl + B to go to the bottom of the document. It does this instantaneously. Next we try something more difficult. We go back to the top of the document, Ctrl + T, and use the search command to find the word "zwoelheid". This is the 195,435th word on page 2,962. Perfection finds this in about 2 seconds.

Who in their right mind writes a document of this size? Dilwyn Jones gave us the answer in the last QL Today when he reviewed PWord, a list of over half a million English words sold by RWA software. Those of us who compile word lists for spell checkers and word games regularly have to stretch our word processors and text editors to the limits, and I have found from experience that Perfection is the best tool for the job.

Technically Perfection is a word processor, which, before release, Digital Precision promised would "blow your socks off". As a word processor it never quite lived up to this promise, and my socks remain firmly on my feet. Even the holes in them have nothing to do with Perfection, but more to do with my habit of walking around in stocking feet. Perfection was an improvement on Quill, but even Quill has features such as soft hyphens and decimal tabs that are found in neither Perfection nor Text87.

The great strength of Perfection is that it works both as a text editor and a word processor. You can load practically any document into it and it will auto-

matically detect if it is a Quill, Perfection or ASCII file. It has fast search (and replace) routines, which are essential for long documents, and it comes with a suite of utilities including Stripsort which contains a fast sorting routine, another essential if you are compiling word lists. All my Just Words! data bases have been written in Perfection.

It is not just word lists that I edit in Perfection. It is sometimes useful for editing and examining basic programs. The search routines allow me to quickly find all occurrences of a variable or to skip from one routine to another. It is much easier to study the structure of a Super Basic program when loaded into Perfection than simply viewing it as a listing.

Before you use Perfection as a text editor there is just a word of warning. When used as a word processor Perfection has some strange formatting quirks and you are likely to find that tabs and some spaces have been replaced by chr\$(205) and line feeds by chr\$(206). Once they get into your document they can be difficult to get rid of. (Hint: use the Stripsort program.) To avoid this problem you must always turn line wrap off (F3 F3 W). It is also advisable to turn automatic reformatting off (F3 W) and set left and indent margins to 1 (F3 F3 M).

This year I am hoping to add several new QTYP dictionaries and word lists to the Just Words! range, and the document I am working on is a list of Dutch words for a QTYP dictionary of over 175,000 words. The list needs considerable editing as it is full of mistakes and was also compiled before a major spelling revision in 1995. To correct it I need to



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A UK 4-way trailing socket designed to switch off computer peripherals automatically when the computer is switched off, or (in the case of an ATX computer) when it auto-powers down. *Compswitch* has one control socket, and three switched sockets. Can be used with lights/hifi/monitors—ie a QL monitor can be used as a switch control.

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Serial mouse..... **£8** (£8.50/£9)  
Capslock/scrolllock LED ..... **£1** (£1.50/£1.50)  
Keyboard or mouse lead..... **£3** (£3.50/£3.50)  
High speed serial (ser3) lead..... **£4** (£4.50/£4.50)

**Hermes available for £25** (£26/£27) Working ser1/2 and independent input, debounced keyboard.

**SuperHermes LITE:** All Hermes features (see above) + an IBM AT keyboard interface only.

Cost (incl keyboard lead) ..... **£53** (£54/£55)

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Think of it - you could fully boot an expanded QL, including all drivers/SMSQ etc off RomDisq at hard disk speed with only a memory expansion needed.

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Aurora adaptor..... **£3** (£3.50/£4)

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check it using the spellchecker on Lotus Wordpro. Let's see how a PC word processor handles this document.

In his PWord review Dilwyn Jones gave us a frightening picture of his PC experiences when manipulating RWP's 500,000+ English word list:

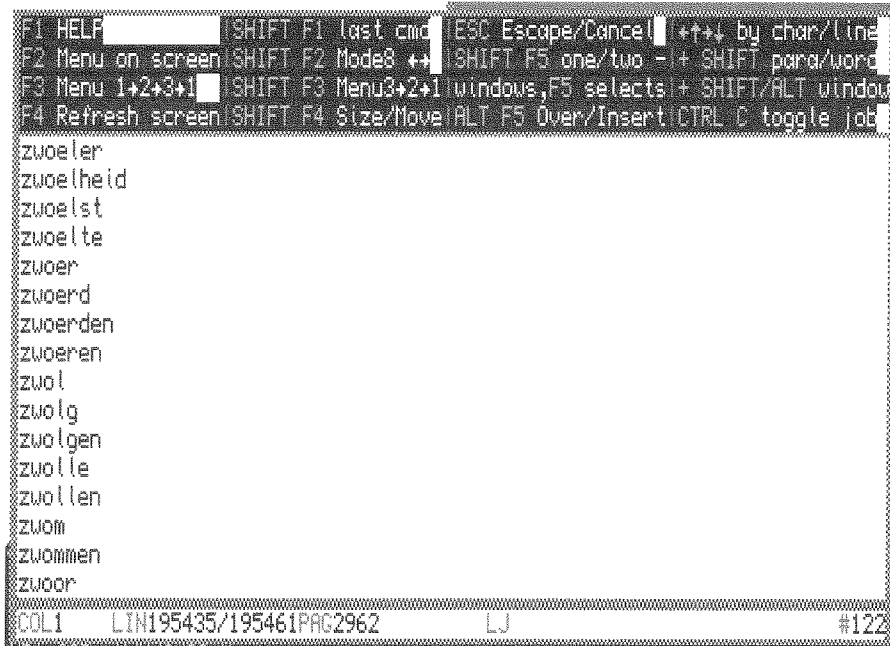
"I foolishly did this on a computer in the office at work. While the process worked, it tied up that computer for several hours."

Put kindly, PCs and our esteemed QL Today editor are not mutually compatible. What will happen to our poor editor when, under new EU regulations, computers have to be disposed of in environmentally friendly ways? If Mr. Plwd the policeman visits him, how will he explain away the mountain of PC's he has thrown out of his window?

Would I have similar nightmarish experiences when I attempted to edit a long word list on a PC? I loaded my word list into Wordpro, and selected the entire document to identify it as a Dutch language text. So far

so good. However, the screen was now displaying the bottom of the text. How do I get back to the top? Usually I use the mouse or click on the page

continuously turning and eventually I ended up with a corrupted file. Clearly I needed to split the list into smaller units. This is no problem in Perfection. Suppose, I want to extract all the letters beginning with b. I search for "azim", which I know is near the end of the a's and scroll down to the start of the b's. I press F3 K to indicate I want to export a block of text, and then press



enter to mark the start of the block. I now search the text for "byza" to get near the end of the b's, scroll down to the end of the b's and press enter to indicate the end of the block. I can now save the file. It is 234 pages long. Wordpro and other PC word processors do not allow you to easily select a block of text this long. You have to use the mouse or click the starting place and then use the cursor keys. Try doing that over 234 pages. PC word processors cannot be used to edit our mega-word-lists and Perfection emerges once again as the clear winner!

Even when I was able to work on the list, the hard disk was

## PE Windows – The Orthodox Way

George Gwilt

The systems TurboPTR and CPTR provide ways of writing PE programs which:

- have easy re-sizing
- have easy buttonising
- are "future-proof"

This is achieved by using the PE system in the standard orthodox way described in the QPTR manual.

Although TurboPTR uses S\*BASIC and CPTR uses C68, the principles are the same: the working definition of a window is derived from a win-

down definition by the PE software instead of being set up directly. As far as I know no other system using either S\*BASIC or C68 does this.

## Window Definition

A window definition is similar to a working definition in that it consists of several sections held together by pointers as described in Jerome Grimbert's article in QL Today Vol 6 Issue 5 but differs from it in three important respects, two of them structural and the third in detail.

The first difference is in the main window itself. The working definition gives the current size and points to the current array of loose items, information windows and application windows. The window definition on the other hand consists of a fixed block containing for example the maximum size and the attributes of the window such as border size and colour, followed by at least one repeated section. Each repeated section contains a size (which must not be greater than either the size in the previous section or in the fixed block) and pointers to loose items, information windows and application windows. Thus the window definition defines a set of windows of decreasing size each with possibly different loose items etc.

The second difference is that the sizes and origins appearing throughout. With the exception of the maximum size in the first part of the main window block, all may have a scaling flag added which is used when a window is re-sized.

The third difference is in the detailed nature of the pointers throughout the two structures, window definition and working definition. In the former the pointers are all of word length and point relative to their position in the structure. In the working definition the pointers are long word absolute addresses.

The first two of these differences are explained in the next section which is concerned with how the working definition is produced. The third affects the details of the implementation of both TurboPTR and CPTR.

## From Window Definition to Working Definition

The PE software includes three routines to help produce the working definition from the window definition:

- wm\_fsize** - finds the repeated section
- wm\_setup** - sets up most of the working definition

**wm\_smenu** - can be used for application sub-windows

### wm\_fsize

On being presented with the size required **wm\_fsize** finds the appropriate repeated section of the window definition giving its number and also returning the actual size. This routine may be omitted if the required repeated section is known in advance.

The main purpose of this routine is to determine the space needed for the working definition. This space must be allocated before **wm\_setup** is called.

### wm\_setup

This essential routine will set up the entire working definition given the size requested.

### wm\_smenu

In the course of setting up application window **wm\_setup** will call the application window's own setup routine, a pointer to which appears in the window definition. This is needed when there is a menu which can be panned or scrolled.

A user can set his own routine or, in standard cases, simply set the pointer to **wm\_smenu** which completes the application window in the working definition.

## Resizing and Buttonising

It is **wm\_setup** which does all the work in producing windows of different sizes on a resize and in producing a button on sleep being requested. Resizing can be done in two different ways. The first is to set a different repeated section in the window definition for each of a number of fixed sizes. This will result in discrete changes in window size. The second way is to make use of the scaling factor.

Under the first method, there should be different sizes and origins for all the information windows, loose items and application windows and all the objects involved for each repeated section. This has the advantage of easy control over the different sizes of a window.

The second method can achieve a continuous range of sizes with only one repeated section. Of course, since the size of window requested can be controlled by the programmer, this method is probably to be preferred to the former. In this method, the differences between the requested x and y values and the maximum x and y values for the repeated section being used are calcula-

ted and set as scaling amounts. These values are added to the minimum values of all rescalable items marked with a scaling flag throughout the window definition for the repeated section in question.

Thus, if a loose item is to be set always at the top right corner of the resizable window, it should have a scalable x origin of the amount needed to set it at the extreme right. The hit area sizes and y origin should be marked not scalable.

If sleep is requested, the window to be set up will be a button sized window. Typically this would come from the second repeated section of the window definition. This might have one loose item to cause a wake but have no information or application windows. By using `wm_setup` with a small enough size requested the button will automatically appear.

### "Future-Proofing"

I stated above that the third advantage of deriving the working definition from the window definition was that programs would be "future proof". There are two places where the orthodox window structure has a pointer back to the window definition. The first is in the working definition itself and the second is in the status area.

If a future change in the PE software made use of these pointers some current programs might cease to work.

By having the pointers in place, set by `wm_setup`, programs should be "future-proof".

As far as I am aware this danger applies to all methods of PE programming using S\*BASIC or C68 except, of course, TurboPTR and CPTR. In most of these cases I presume that the pointer to the window definition is zero. The exception is in Tony Tebby's C68 system where the working definition has a pointer to a new structure, undefined in the orthodox PE system, called `WM_wscale`. This is used to aid in resizing when there is no window definition but it requires special software for its implementation taking the place of PE's `wm_setup`.

### Relative Word Pointers

This section explains how relative word pointers in the window definition are set up both by TurboPTR and by CPTR.

The pointers inside the window definition are all defined to be of word length. If, however, the target is more than 32K bytes from the pointer, the pointer is set to point instead to a nearby long word which itself points to the target.

The word pointer in that case has one added to its value to indicate indirection.

This works provided that there is always available a free long word within reach of the original word pointer. The problem of ensuring that there is always an available long word in reach is solved in two different ways.

### TurboPTR

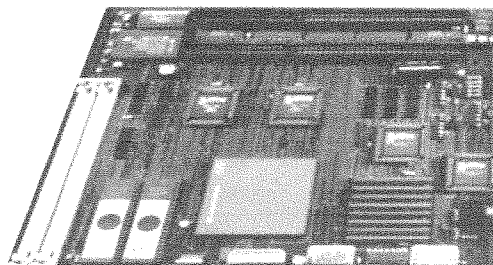
In TurboPTR, whenever a structure containing pointers is set up, space for this is taken from the heap. The amount of space is calculated as that needed for the structure itself to which is added the maximum number of long words that would be needed if all possible word pointers inside the structure pointed to targets out of range. This extra space is thus bound to contain enough long words for indirection for all the word pointers. This can't go wrong unless the total space for this structure is greater than 32K.

There are exceptions to the principle of indirection for word pointers. For some reason they do not apply to the few pointers calculated relative to the status area rather than relative to the address of the pointer itself. In TurboPTR the window definition nevertheless is initially set up so that it may contain such indirect pointers. This is corrected in the SuperBASIC keyword `M_SETUP` after both `wm_fsize` and then `wm_setup` have been called.

### CPTR

In CPTR, there is a further problem with word pointers. Solution of this problem also solves the indirection problem as will become clear. Pointers in C are long words containing the absolute address of the target. It is not possible therefore to enter the address of an item in the window definition directly. I overcame this problem by arranging that in the `_c` source file all pointers would become integers (1, 2, etc) giving the position in a table of the required address. These integers, of course, have to be intercepted and changed to the correct word pointers before `wm_setup` is used. This is done in the program "getsze" which must be called at the start of every CPTR program. By this time the program is loaded and all the addresses have become absolute. It is a simple matter to find the relative word pointer required in each case.

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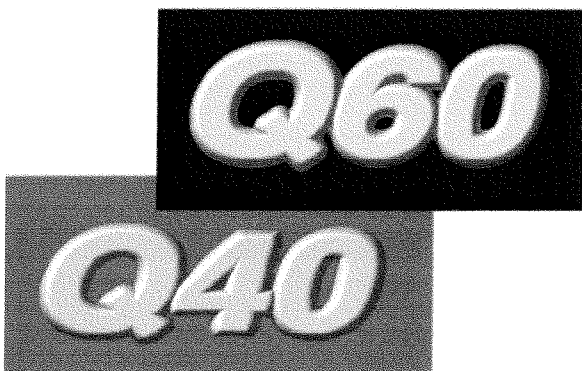


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It would be very tedious if a programmer were to have to set these numbers himself in the initialisation of the window definition. Hence, in CPTR, the programmer can set up a source file with the tail `_z`. In this file all relative pointers in the window definition can be entered directly as the required address, but with a marker. A pre-processing program, "spr", will turn the `_z` file into an acceptable `_c` file by changing the marked addresses into the correct numbers. An array of all the addresses to which the word pointers point is set up by "spr" at the end of the window definition and this will be used by "getsize".

Since the array of addresses is adjacent to the window definition, each of them will be within 32k bytes of the pointer unless the window definition is incredibly large. The position of the addresses themselves will be filled with the long word relative pointers by "getsize" if the target is too far away in any particular case.

This may seem rather complicated but, since the complications are hidden inside system software

the programmer making use of either system has in practice little to do to set the working definition as is shown in the next section.

## Practicalities

In practice the production of a working definition with both TurboPTR and CPTR is quite easy.

For TurboPTR the first step is to use `setf_task` to produce all the window definitions needed in a program. These will be set in a group of S\*BASIC DATA lines in a file with tail `_WDA`.

For C68 programs the program `setz` can similarly be used to produce a file with tail `_z` containing window information in a form suitable for a C program.

The next step is to write the instructions needed to produce the working definition. As an indication of this the instructions for an S\*BASIC program are given below followed by the corresponding C68 instructions.

## S\*BASIC (assuming compilation by Turbo)

```
1000 OPEN#0,con           :REMark we need a channel
1010 IF NOT Set_Win:STOP  :REMark the window definition is set in wd(0)
1020 wwd=M_SETUP(#100,wd(0),0) :REMark the working definition is at wwd
```

## C68

```
/* Declarations of variables to be
 * added by the programmer
 */
```

```
void *wwa;
static chanid_t chid;
```

```
/* Instructions to be added
 * by the programmer to get
 * the working definition
 */
```

```
wwa = malloc(wd0_sizes[0]);           /* allocate the size needed */
chid = fgetchid(stdout);              /* we need a channel      */
wm_findv(chid);                      /* to get the PE vector   */
wm_setup(chid,0,0,&wd0,&ws[0],&wwa,0); /* working definition is set */
```

It will be seen from this that very little in the way of programming is needed to arrive at a working definition if either TurboPTR or CPTR is used.

# The new WMAN colours, and how to use them from Sbasic with QPTR

Wolfgang Lenerz

This can be seen as a complement to my series on programming the PE with QPTR. However, unlike that series which is pitched at the beginner, this little article also addresses itself to those who are fluent with QPTR, but don't know yet how to obtain more colours than the basic QL colours from within the Pointer Environment.

This explanation will probably sometimes seem a bit longwinded, but as is usual with me, I prefer to make sure I have covered the basics before moving on.

## 1 – What, more colours?

You would really have to have left the QL scene for a long time, only to return yesterday, if you still ignored that high colour modes exist today for three platforms: QXL, QPC and Qx0. The high colour drivers for the Aurora just happen to be ready, and should soon be available (see News).

In any case, whilst the colour drivers have existed for some time now, until recently, it wasn't really possible to use them under the pointer environment, or more specifically under most of WMAN, the window manager part of the Pointer Environment. Software that uses only the Pointer Interface, could use these colours as of the beginning. In fact, WMAN needed to be redone, or at least overhauled, to be able to use the new colours.

Marcel Kilgus, of QPC fame, then tackled this herculean task, and a first version of a new WMAN was released when QPC 3.03 came out. This was just before the new licence for SMSQ/E came into effect, and, thus, until now, only QPC was able to benefit from this new WMAN.

Since then, the new licence for SMSQ/E came into effect. You are probably aware that under this licence, the source code for SMSQ/E is made available to all and sundry and that, as a software registrar, I attempt to make sure that SMSQ/E for all platforms has the same facilities (where possible, necessary and appropriate). I am happy to report that Marcel Kilgus happily agreed to supply his code to this common effort –

however, perfectionist that he is, he wanted to tweak his code to make it even better.

At the time of writing this article (start of January), this is being done, and, hopefully by the time you read this, SMSQ/E 3.00 will be out with the new WMAN, for the platforms mentioned above. Please note that the higher colours will, in any case, only be possible in PE applications if you have a recent version of SMSQ/E (i.e. version 3.00 for all machines other than QPC, where version 2G99 of SMSQ/E will suffice in part). Other, older, versions of the pointer interfaces or WMAN cannot handle the new colours.

## 2 – Some technical details.

OK, thus far for history. Let's first of all look into how WMAN deals with the colours, and only then how to use them from Basic.

Technically, we were very lucky to have Tony Tebby's foresight when designing the pointer interface. Indeed, whenever a colour is to be specified for use with the PE calls or data structures, this colour is specified as a "word", i.e. 2 bytes. A small calculation will show you that, in the ordinary QL world, this is superfluous, since all colours are normally only one byte (8 bits) wide, so that every time one used a colour, a byte more was used than strictly needed to be. Fortunately, this feature was kept, because, today, we can use the entire word to specify the colours. This means that colour can be specified using, in principle, 16 bits. If you make a small calculation, this means that you are able to specify 65536 different colours.

However, the problem is that the new WMAN must not break old software: old software must continue to work just as well with the PE as new software. Thus, there must be some way to distinguish between a colour given to the PE as an "old" (1 byte) colour, and a colour specified as a new colour.

One possibility would have been to make separate system calls for old and new colours – which would have introduced complications and incompatibilities. So the same system calls have been kept. This means, however, that some way must be found to distinguish between "old" and "new" colours – after all, we are using the same word to determine a colour, but for an old job, this means a different colour than for a new job.

So Marcel devised the new colour formats, which determine how a colour is formatted, thus allowing the PE to recognize what is what. This information has already been published here in QL Today (July/August 2002, p. 28) so just to recap:

Old colours are coded on a word where the upper byte is 0: 00000000 cccccccc

It is thus easy to find out whether a colour is an old or a new colour: if the upper byte is 0, it is an old colour. For new colours, at least one bit of the upper byte will now not be 0, thus marking this colour as a "new colour". The format for the other colours thus are:

00000001 pppppppp

palette colour. As you can see, the lowest bit in the upper byte is set to 1 – this signifies that the colour is a palette colour.

00000010 pppppppp

colour taken from the system palette

00000011 cccccccc

colour taken as a grey scale

01ssxxxx xxyyyyyy

colours x and y are stippled

1rrrrrrg gggbbbbb

high colour – 15 red, green and blue bits.

The only concept that needs further explanation, perhaps, is that of a system palette. In the words of Marcel Kingus, "in principle it is a normal colour palette, i.e. you have indexes from 0 to x which all contain some colour. The difference between a normal palette and the system palette is that each index has a specific meaning, i.e. index 0 is the colour of the main window border. In principle, parts of the normal palette could have been allocated for that, but I wanted to keep things separate.

Applications can now use this system palette colour instead of a real colour (like "red"). This way the user himself can define how the borders of the application should look like just by altering the system palette".

### 3 – Using these colours from Sbasic in QPTR

Now that the theory has been set out, let's try to see how we can use these new colours from Basic when designing a program using QPTR.

First of all, we should remember that the high colour drivers introduced, amongst others, three new commands: COLOUR\_QL, COLOUR\_PAL, COLOUR\_24. These set the colours one uses from Basic as, respectively, "normal" QL colours, PALette colours and 24 bit colours.

You can test this easily by typing the following in any Sbasic window:

```
colour_ql:paper 255:cls
you'll get the usual stippled grey.
```

```
colour_pal:paper 255:cls
you'll get a nice yellow
```

```
colour_24:paper 2255:cls
and you'll get a nice blue.
```

So each time you get a different colour, since each time the colour you pass means something different – a normal QL colour, taken from the palette or a 24 bit colour.

Something like this can also be achieved for PE programs, even if the definitions as set out above provide for more possibilities (grey scale etc).

Thus, I shall only deal here with two colours – the palette colour and the high (24 bit) colour. You will be able to see from there how you can do it for the rest.

### A – Palette colours – the magic 256

Using palette colours is dead simple: You just indicate the number of the palette colour, whenever you want to indicate a colour. You just have to remember to add 256 to this. Why? Well, in binary, 256 comes to 00000001 00000000. So, if you add that to your palette colour, you will have set the lowest bit in the upper byte that indicates that this is, indeed, a palette colour.

DO NOT FORGET to use the command "COLOUR\_PAL" as one of the first instructions of your basic program! This makes sure that the other colours you will use (eg when inputting something inside a loose item) will also correspond to the correct colours.

### B – High colours – Out of 24 make 15

High colours are normally indicated as a long word (4 bytes), out of which 24 bits are used for the colours – one byte each for Red, Green and Blue. In SBasic, this long word is treated as a normal floating point, which you can decompose as:



red \* 65536 + Green \* 256 + Blue  
where Red, Green and Blue can be values from  
0 to 255.

However, (and this may come as a surprise to you) it is a fact that up to now, there is no QL platform that can handle these high colours as such. Actually, all 24 bit colours are "downgraded" to 16 bit colours when it comes to display them on the screen.

In that respect, QPC and QXL handle these colours as gggbbbb rrrrrggg (6 green bits and 5 for red and blue) whereas the Qx0 handles them as ggggrrr rrbbbb (5 bits each green, red, blue + one brightness bit).

Thus, there is some disparity between the way these two platforms handle these colours. This, however, doesn't matter much here since the new Wman colours are 15 bit colours, as we have noted above. So we won't lose much using them instead of the normal 24 bit colours, since we'll only be "downgrading" from 16 bits to 15 bits.

So, all is fine. There is, however, a small problem: How do you get 15 bit colours? After all, in high colour mode, you specify colours as 24 bit colours (even if they are "downgraded" to be displayed on the screen). How do you mix 'n match a WMAN colour with a normal colour since normal colour calls (e.g. Paper etc) require a normal high colour to be specified, and not a WMAN colour? The second question has already been answered by Marcel, but let's take them one after the other.

### a - Getting 15 bit colours

First of all, how do you make a normal 24 bit colour into a 15 bit colour with the 16th bit set to show that is it a new WMAN colour? Normally, you do that by the long word containing the three high colour bytes, then taking away the least significant bits of each byte and then shifting the remaining bits around until they fit in a 15 bit word.

It is true that this is not always a good solution, notably when displaying photos (too much colour information may be lost) but here we're only concerned with windows that you design from scratch, so this will probably not matter very much since you can use those colours that you wish. Unfortunately however, shifting bits around in individual (long) words is not one of the strong points of Sbasic, so that may present a first problem.

Second, how do you pass the colour in the correct format to QPTR? Because that, indeed, may be a problem. Remember, that QPTR nearly always requires colours to be specified as Sbasic integers. For the new WMAN, to signify a 15 bit colour, the highest bit of the upper word is set - for Sbasic this means a negative value. Indeed, in Sbasic, a word (if taken as an Sbasic integer) where the highest bit is set is considered to be a negative value. To get around this, once you have made your 15 bit colour from the high colour, you will have to use the following formula, where a% is the 15 bit colour you would want to use:

$$a\% = (32768 - a\%)*-1$$

Then you get the same value, but with bit 15 also set.

I decided to resolve these problems with some small machine code routines, which I will put on the QL Users mailing list - from where it will probably be put on the web etc, for easier access. I can also supply it on a disk for those who don't have internet access. You pass it a normal high colour (24 bit) value and it gives you back the correctly formatted (negative) integer that you can use in QPTR.

The keyword (it is a function) is: WL\_MK16. It takes as parameter a high colour value (24 bits) and returns the correctly formatted 16 bit value:

```
wman_colour%=WL_MK16(high_colour)
```

You can now use this value for any WMAN colour, e.g. setting the paper colour of your window.

### b - Mixing and matching

Now that you have your correct WMAN colour, the problem is that you will probably also want to use it in "normal" colour calls.

Indeed you probably also want to be able to use your window's paper colour for, e.g. the loose item background, in other circumstances. For example, it often happens that when one clicks on a loose item, this allows the user to edit the text of the item. The way this is generally achieved from Sbasic with QPTR, is that a new channel is opened over the loose item, then the paper of that channel is set to the paper of an "available" loose item (ditto for the ink), and an INPUT is made. For that, though, you would need to pass a normal 24 bit colour to the PAPER call for that channel.

This would have meant that you have to maintain a set of different variables, one a normal high colour colour, and the other the corresponding WMAN colour.

Fortunately, the new WMAN will come with several new functions, such as WM\_PAPER, which you can use instead. These new keywords behave just like their normal counterparts, except that the colours you pass them are WMAN colours.

Moreover, the same toolkit as the one containing the WL\_MK16 keyword also contains another one, that makes a high colour long word out of a WMAN colour word.

```
high_colour=WL_MK24(wman_colour%)
```

This function can cope with 15 bit wman colours, the colours used as indicators into the system palette and grey scales (but not for stippled colours).

## c - Info Object items

There is one final small problem, i.e. how to handle some aspects of information subwindow object items. QPTR expects for these objects, if they are text, that you pass it a long word, which is a combination of ink colour and Csize. If you use QPTR to make these object lists, you will probably use the Basic functions that came with it, to make the different lists and objects. In this case, this would be the "RD\_IOT" function supplied.

However, here you can't use the normal function for that, because the colour is a negative word, and, if you use the normal function, you will get a negative floating point number, which will then be rejected by QPTR.

For that, I made a new keyword, WL\_4\_IOL. This takes three parameters  
wman\_colour, csize1, csize2  
and returns them combined as a standard Sbasic floating point number.

To use this correctly, I also modified the RD\_IOT functions accordingly, as follows:

```
:  
DEFine FuNction RD_IOT(nitem)  
  LOCAL count(3)  
  LOCAL item, ltyp, work1, work2  
  LOCAL ldef%(nitem,4), lptr(3,nitem), lstr$(nitem,85)  
  FOR item = 0 TO nitem  
    READ ldef%(item,0), ldef%(item,1), ldef%(item,2), ldef%(item,3)  
    READ ltyp  
    ldef%(item,4)=ltyp: ltyp=(ltyp MOD 256)/2  
    IF ltyp >10:ltyp=0  
    IF ltyp  
      READ lptr(0,item),lptr(ltyp,count(ltyp))  
    ELSE  
      if mycolour_mode%=2  
        read work1,work2,work3  
        lptr(0,item)=WL_MK32(work1,work2,work3)  
      else  
        READ work1  
        READ work2: work1=work1*256+work2  
        READ work2: lptr(0,item)=work1*256+work2  
      endif  
      READ lstr$(count(0))  
    END IF  
    count(ltyp) = count(ltyp) + 1  
  END FOR item  
  RETURN MK_IOL (ldef%(TO, 0 TO 1), ldef%(TO, 2 TO 3), lptr(0), ldef%(TO, 4),  
lstr$, lptr(1), lptr(2), lptr(3))  
END DEFine RD_IOT
```

Please note that there may be another change in that function with respect to your original function - I pass it the number of objects -1

instead of the number of objects, so you might have to adjust the item variable accordingly.

# Gee Graphics! (on the QL?)

## - Part 32

H. L. Schaaf

### "Voronoi to Delaunay, long and longer"

Steve Poole sent me a program from the past. It was mentioned a few times in recent issues of QL Today. I've sent my efforts of converting it over to the QL to the editor in two versions, long (V2D\_Aug21\_bas 10 Kbytes) and longer (V2D\_Aug20\_bas 50 Kbytes).

The 10K version seems to work OK as a simple demonstration.

The 50K version has more options, menus, and explanations and allows us to explore the effects of the many input variables and parameters, and examine a work in progress to see what works and what doesn't. Several of the examples are known to be degenerate, without exact solution, but

we get around them by 'nudge and fudge' techniques. There is a 'redo' Procedure to recover from unworkable positions. In order to allow for flexibility in user input and modification of the values, I've mucked about a bit with a tentative line parsing VAL FuNction that I hope to expand later. LRESPR SORT for this version.

I wonder what version(s) the editor will use? I hope he picks the longer one.

Still thinking about that Steiner tree problem, and will start introducing it to my QL soon.

**The editor has picked the longer version at the "cost" of a much smaller font.**

```
100 REMark V2D_Aug20_bas longer version
110 REMark HL Schaaf August 20 , 2002 modified from
120 REMark Voronoi_bas by S. Poole, v8fev2002.
130 REMark based on article by Frederic Neuville
140 REMark in Science & Vie Micro No.46 Janvier 1988
150 :
160 set_stage
170 introduction
180 :
190 REMark should we allow for exploration via zooming to
200 REMark examine details of diagram after finishing ?
210 REMark and have inputs menu as before , DATA, Keyboard, etc.
220 REMark use all quadrants, have auto-scaling, etc. ?
230 :
240 DEFine PROCedure V2D
250 IF pattern_num=5: DIM P(mp,2),ar((3*mp+6),6),p1(2,6),ps(mp+2,2)
260 IF pattern_num=4: DIM ar((3*mp+6),6),p1(2,6),ps(mp+2,2)
270 na = 0 : fc = 0 : pp = 0 : fp = 0
280 dy = 0 : dx = 0 : sp = 0 : dd = 0
290 :
300 SElect ON pattern_num
310 = 1 :
320 IF r_or_c$='r' THEN
330 make_random_r
340 ELSE
350 make_random_c
360 END IF
370 = 2 : make_circle
380 = 3 : make_spiral(wraps)
390 = 4 : make_grid
400 = 5 : REMark
410 = 6 : REMark drop through
420 = REMAINDER : STOP
430 END SElect
440 :
450 IF (mp<2) :PRINT #0"not enough points":STOP
460 DIM nl(mp) :REMark number of lines or arrets or edges
470 DIM msp(mp) : maxsp = 0 :REMark maximum use of stack pointer
480 DIM elap(mp): REMark elapsed time per point
490 IF sor : sort_pts
500 start = DATE
510 CLS#0 : CLS
520 show_diagram
530 :
540 x1=P(1,1): x2=P(2,1): y1=P(1,2): y2=P(2,2)
550 PRINT #0;'1.2.';
560 IF NOT(mC):mediant
570 IF mC :mediantC
580 na=1
590 ar(1,1)=xa: ar(1,2)=ya: ar(1,3)=xb
600 ar(1,4)=yb: ar(1,5)=1 : ar(1,6)=2
610 :
620 FOR i = 3 TO mp
630 show_prog = 0
640 IF see_it_work THEN
650 IF (NOT (i MOD see_it_work)) :show_prog = 1
660 END IF
670 maxsp = 0
680 PRINT #0;i;
690 pp=0: sp=0: fc=0
700 dm=1E10
710 :
720 FOR i9=1 TO i-1
730 dx=P(i,1)-P(19,1): dy=P(i,2)-P(19,2): d = (dx*dx + dy*dy)
740 IF d < dm : dm = d : k = i9
750 END FOR i9
760 :
770 x1=P(i,1): x2=P(k,1): y1=P(i,2): y2=P(k,2)
780 IF NOT(mC): mediant
790 IF mC : mediantC
800 FOR ia=1 TO na
810 grow_bounds (1)
820 END FOR ia
830 na=na+1
840 ar(na,1)=xa: ar(na,2)=ya: ar(na,3)=xb: ar(na,4)=yb
850 ar(na,5)=k :ar(na,6)=1
860 IF show_prog : INK 4:LINE xa,ya TO xb,yb
870 :
880 REPEAT bounds
890 IF (pp < 1) : EXIT bounds
900 k=p1(pp,3): xs=p1(pp,1): ys=p1(pp,2): pp=pp-1
910 x1=P(i,1): x2=P(k,1): y1=P(i,2): y2=P(k,2)
920 IF NOT(mC) : mediant
930 IF mC : mediantC
940 FOR ia=1 TO na
950 grow_bounds (2)
960 END FOR ia
970 na=na+1
980 PRINT#0;'. ';
990 ar(na,1)=xa: ar(na,2)=ya: ar(na,3)=xb: ar(na,4)=yb
1000 ar(na,5)=k: ar(na,6)=1
1010 IF show_prog : INK 4 : LINE xa,ya TO xb,yb
1020 IF fc=2: EXIT bounds
1030 IF fc=1: fc=2
1040 END REPEAT bounds
1050 :
1060 suppress_edges
1070 msp(i)=maxsp
1080 IF msp(i):msp(0) : msp(0)=msp(i)
1090 elap(i) = DATE-start
1100 nl(i) = na
1110 IF show_prog :PAUSE
1120 show_progress
1130 END FOR i
1140 :
1150 elapsed = DATE - start
1160 CLS #0 :PRINT #0,elapsed;' seconds ';mp;' points'
1170 CLS
1180 show_diagram
1190 PRINT #0;'Please touch [SPACE BAR] for Delaunay triangulation'
```

```

1200 PAUSE : CLS #0
1210 INK 4 : show_Delaunay
1220 PRINT #0\ 'Please touch [SPACE BAR] for recapitulation'
1230 PAUSE
1240 recap
1250 vertices
1260 choose_next
1270 END DEFine V2D
1280 :
1290 DEFine PROCedure choose_next
1300 w_n$ = ''
1310 REPeat what_now
1320 CLS#0
1330 PRINT #0;" [C]lear screen, [V]oronoi diagram, [D]elaunay
triangles"
1340 PRINT #0;" [N]umber points, [S]ame points with options,
[P]attern change"
1350 PRINT #0;" [R]un (resets defaults) [Q]uit"
1360 PRINT #0;,, " Please touch letter of choice"
1370 w_n$ = INKEY$(1)
1380 IF w_n$ == 'c':CLS
1390 IF w_n$ == 'r':CLEAR : RUN
1400 IF w_n$ == 'v':show_diagram
1410 IF w_n$ == 'd':show_Delaunay
1420 IF w_n$ == 'n':number_points
1430 IF w_n$ == 's' OR w_n$ == 'q' OR w_n$ == 'p' : EXIT what_now
1440 END REPeat what_now
1450 IF w_n$ == 's':second_chance
1460 IF w_n$ == 'p':first_menu
1470 IF w_n$ == 'q':STOP
1480 END DEFine choose_next
1490 :
1500 DEFine PROCedure show_diagram
1510 INK 7
1520 FOR ip=1 TO mp: CIRCLE P(ip,1),P(ip,2),1/zoom
1530 FOR ip=1 TO mp: POINT P(ip,1),P(ip,2)
1540 FOR ip=1 TO na
1550 LINE ar(ip,1),ar(ip,2) TO ar(ip,3),ar(ip,4)
1560 END FOR ip
1570 END DEFine show_diagram
1580 :
1590 DEFine PROCedure mediant
1600 FOR f_b = 2
1610 xm=(x1+x2)/2: ym=(y1+y2)/2
1620 dx=x2-x1: dy=y2-y1: fb=0
1630 REMark special case with mediant as vertical line when dy = 0,
1640 IF ABS(dy)<tol1: xa=xm :xb=xm :ya=bb_t:yb=bb_b : fb = 2 : EXIT
f_b
1650 REMark special case with median as horizontal line when dx = 0
1660 IF ABS(dx)<tol1: xa=bb_l :xb=bb_r :ya=ym:yb=ym : fb = 2 : EXIT
f_b
1670 by = ym + xm * (dx/dy)
1680 REMark where does mediant hit the bounding box
1690 :
1700 yleft = by - (bb_l * (dx/dy))
1710 IF yleft>bb_b AND yleft < bb_t THEN
1720 SELEct ON fb
1730 = 0 :xa=bb_l :ya = yleft : fb = fb + 1
1740 = 1 :xb=bb_l :yb = yleft : fb = fb + 1
1750 = REMAINDER
1760 END SELEct
1770 END IF
1780 :
1790 yright = by - ((dx/dy)*bb_r)
1800 IF yright>bb_b AND yright>bb_t THEN
1810 SELEct ON fb
1820 = 0 :xa=bb_r :ya = yright : fb = fb + 1
1830 = 1 :xb=bb_r :yb = yright : fb = fb + 1
1840 = REMAINDER
1850 END SELEct
1860 END IF
1870 :
1880 IF fb = f_b: EXIT f_b
1890 :
1900 xtop = -(dy/dx)*(bb_t-by)
1910 IF xtop>bb_r AND xtop>bb_l THEN
1920 SELEct ON fb
1930 = 0 : xa = xtop : ya = bb_t : fb = fb+1
1940 = 1 : xb = xtop : yb = bb_t : fb = fb+1
1950 = REMAINDER
1960 END SELEct
1970 END IF
1980 :
1990 IF fb = f_b :EXIT f_b
2000 :
2010 xbot = -(dy/dx)*(bb_b-by)
2020 IF xbot>bb_r AND xbot>bb_l THEN
2030 SELEct ON fb
2040 = 0 : xa=xbot:ya = bb_b : fb = fb + 1
2050 = 1 :xb=xbot:yb = bb_b : fb = fb + 1
2060 = REMAINDER
2070 END SELEct
2080 END IF
2090 END FOR f_b
2100 PRINT #0;'M';
2110 END DEFine mediant
2120 :
2130 :
2140 DEFine PROCedure intersection
2150 x1 = xb - xa : x2 = xd - xc : x3 = xc - xa
2160 y1 = yb - ya : y2 = yd - yc : y3 = yc - ya
2170 d = x2*y1 - x1*y2 : IF d = 0 : fi = 0 : RETURN
2180 Px = (x2*y3 - x3*y2)/d : qx = (x1*y3 - x3*y1)/d
2190 IF Px < (-tol2) OR Px > (1+tol2) : fi = 0 : RETURN
2200 IF qx < (-tol2) OR qx > 1+tol2 : fi = 0 : RETURN
2210 fi = 1 : x1 = xa + Px*x1 : y1 = ya + Px*y1
2220 PRINT #0;'X';
2230 END DEFine intersection
2240 :
2250 DEFine PROCedure suppress_edges
2260 IF sp > 0 THEN
2270 REPeat sup_edg
2280 PRINT #0;'!';
2290 IF (sp < 1) : EXIT sup_edg
2300 x7=ps(sp,1): y7=ps(sp,2): sp = sp - 1
2310 n7=na
2320 REPeat sup_loop
2330 IF (n7 < 1) : EXIT sup_loop
2340 IF ((ABS(ar(n7,1)-x7)+ABS(ar(n7,2)-y7)) <= tol2) THEN
2350 x8=ar(n7,3): y8=ar(n7,4) : terminate_edges
2360 END IF
2370 IF ((ABS(ar(n7,3)-x7)+ABS(ar(n7,4)-y7)) <= tol2) THEN
2380 x8=ar(n7,1): y8=ar(n7,2) : terminate_edges
2390 END IF
2400 n7 = n7 - 1
2410 IF (n7 < 1) : EXIT sup_loop
2420 END REPeat sup_loop
2430 IF (sp < 1) : EXIT sup_edg
2440 END REPeat sup_edg
2450 END IF
2460 END DEFine suppress_edges
2470 :
2480 DEFine PROCedure terminate_edges
2490 FOR i7=1 TO sp
2500 IF ((ABS(x8 - ps(i7,1)) + ABS(y8 - ps(i7,2))) <= tol2 ) THEN
2510 sp = sp + 1 : ps(sp,1)=x8: ps(sp,2)=y8 : PRINT #0;'!';
2520 IF sp>maxsp : maxsp = sp
2530 EXIT i7
2540 END IF
2550 END FOR i7
2560 sp = sp + 1 : ps(sp,1)=x8: ps(sp,2)=y8:PRINT #0;'!';
2570 IF sp>maxsp : maxsp = sp
2580 IF (n7 < na) THEN
2590 IF show_prog THEN
2600 INK 2 : LINE (ar(n7,1)),(ar(n7,2))TO (ar(n7,3)),(ar(n7,4))
2610 END IF
2620 FOR i7 = n7 + 1 TO na
2630 FOR k7=1 TO 6
2640 ar(i7-1,k7)=ar(i7,k7)
2650 END FOR k7
2660 END FOR i7
2670 END IF
2680 na=na-1
2690 END DEFine terminate_edges
2700 :
2710 DEFine PROCedure grow_bounds (t)
2720 IF ((k=ar(ia,5)) OR (k=ar(ia,6))) THEN
2730 k2=ar(ia,5): IF k2=k: k2=ar(ia,6)
2740 xc=ar(ia,1): yc=ar(ia,2): xd=ar(ia,3): yd=ar(ia,4)
2750 fi = 0
2760 intersection
2770 IF fi=0 :RETURN
2780 dd = double_d(xa,ya)
2790 IF dd >= 0 : xa=xi: ya=yi
2800 IF dd < 0 : xb=xi: yb=yi
2810 dd = double_d(xc,yc)
2820 IF dd >= tol1 THEN
2830 IF ((ABS(ar(ia,3)-xi)+ABS(ar(ia,4)-yi)) < (tol1)) THEN
2840 grow(t)
2850 RETURN
2860 END IF
2870 sp=sp+1: ps(sp,1)=ar(ia,3): ps(sp,2)=ar(ia,4)
2880 IF sp>maxsp : maxsp = sp
2890 IF show_prog :INK 2:LINE ar(ia,3),ar(ia,4) TO xi,yi

```

```

2900 ar(ia,3)=xi : ar(ia,4) = yi :grow(t):RETurn
2910 END IF
2920 IF ((ABS(ar(ia,1)-xi)+ABS(ar(ia,2)-yi)) < (tol1)) THEN
2930 grow(t)
2940 RETurn
2950 END IF
2960 sp=sp+1: ps(sp,1)=ar(ia,1): ps(sp,2)=ar(ia,2)
2970 IF sp>maxsp : maxsp = sp
2980 IF show_prog :INK 2:LINE ar(ia,1),ar(ia,2) TO x1,y1
2990 ar(ia,1)=xi : ar(ia,2) = yi
3000 IF t = 1 : pp = pp+1:p1(pp,1)=xi:p1(pp,2)=yi:p1(pp,3)=k2
3010 IF t = 2 : grow(t)
3020 END IF
3030 END DEFine grow_bounds
3040 :
3050 DEFine PROCEDURE grow(t)
3060 IF t = 1 : pp = pp+1:p1(pp,1)=xi:p1(pp,2)=yi:p1(pp,3)=k2
3070 IF t = 2 THEN
3080 IF fc = 2 : RETurn
3090 IF ((ABS(xi-xs)+ABS(yi-ys)) < (tol1)): RETurn
3100 IF pp > 0 THEN
3110 fp=0
3120 FOR kp = 1 TO pp
3130 IF p1(kp,3) = k2: fp = kp : EXIT kp
3140 END FOR kp
3150 IF fp > 0 THEN
3160 fc=1
3170 END IF
3180 END IF
3190 pp=pp+1: p1(pp,1)=xi :p1(pp,2)=yi: p1(pp,3)=k2
3200 END IF
3210 END DEFine grow
3220 :
3230 DEFine FuNction double_d(xn,yn)
3240 ix=xn-P(1,1): iy=yn-P(1,2)
3250 kx=xn-P(k2,1): ky=yn-P(k2,2)
3260 RETurn ix*ix+iy*iy-(kx*kx+ky*ky)
3270 RETurn ix
3280 RETurn iy
3290 RETurn kx
3300 RETurn ky
3310 END DEFine :REMark FuNction double_d(xn,yn)
3320 :
3330 DEFine PROCEDURE make_random_r
3340 LOCAL i
3350 FOR i = 1 TO mp
3360 P(i,1)=(lx*(margin+((1-(2*margin))*RND)))
3370 P(i,2)=(ly*(margin+((1-(2*margin))*RND)))
3380 END FOR i
3390 END DEFine make_random_r
3400 :
3410 DEFine PROCEDURE make_random_c
3420 LOCAL i
3430 radius_m = (ly/2)*(1-margin) - 16
3440 FOR i = 1 TO mp
3450 REMark need to shift more towards rim !
3460 REMark use 16 as fudge factor to force away from center
3470 radius = 16 + (radius_m * (1- (RND)^2))
3480 angle = 2*PI*RND
3490 P(i,1)=lx/2 + COS(angle)*radius
3500 P(i,2)=ly/2 + SIN(angle)*radius
3510 END FOR i
3520 END DEFine make_random_c
3530 :
3540 DEFine PROCEDURE show_Delaunay
3550 LOCAL i
3560 INK 4
3570 FOR i = 1 TO na
3580 LINE P(ar(i,5),1),P(ar(i,5),2) TO P(ar(i,6),1),P(ar(i,6),2)
3590 END FOR i
3600 INK 7
3610 END DEFine show_Delaunay
3620 :
3630 DEFine PROCEDURE set_stage
3640 REMark set screens, ranges, etc.
3650 r_seed$ = '42'
3660 RANDOMISE r_seed$
3670 graspix = 476/645
3680 IF VER$='JSU' : graspix = 344/549
3690 REMark set limits for graphic x and y values for WTV (448x200)
3700 ly = 200-1 :lx = 448 * graspix
3710 zoom = 1
3720 SCALE ly/zoom,(lx/2)*(1-(1/zoom)) ,(ly/2)*(1-(1/zoom)) : CLS
3730 REMark : mC = 0 :REMark use bounding box (rectangle)
3740 REMark mC = 1 : REMark use bounding circle centered at lx/2,ly/2
3750 mC = 1
3760 bb = 2 : bc = 2 : set_boundary
3770 MODE 4
3780 WTV: SCALE ly, 0, 0 : PAPER 0 : INK 7 : CLS
3790 REMark set tolerances
3800 toll = 2^-9
3810 tol2 = 2^-14
3820 REMark margin for border space inside window, range 0 to .5
3830 margin = 1/16
3840 sor = 0 :REMark sorting option off vs on
3850 cntr_pt = 0 : REMark option for circles
3860 see_it_work = 0 : REMark option for work_in_progress
3870 REMark declare variables and null them
3880 io$ = '' : io = 0 : cw$ = '' : cw = 0 :REMark for Spiral
3890 r_or_c$ = '' : rc$ = '' :REMark for Random and Grid
3900 END DEFine set_stage
3910 :
3920 DEFine PROCEDURE set_boundary
3930 REMark set for bounding rectangle and mediant
3940 REMark set external bounding box, left, right, top, bottom
3950 REMark set out far enough to get convex hull on Delaunay
3960 REMark not more than 35 ?
3970 REMark set for bounding box and mediant
3980 bb_l = -bb*lx : bb_r = (bb+1)*lx :bb_t = (bb+1)*ly :bb_b =
- bb*ly
3990 REMark set for bounding circle and mediantC
4000 bc_x = lx/2 : bc_y = ly/2 : bc_r = bc*SQRT(bc_x*bc_x+bc_y*bc_y)
4010 END DEFine set_boundary
4020 :
4030 DEFine FuNction SGN(n)
4040 RETurn (n>0) - (n<0)
4050 END DEFine SGN
4060 :
4070 DEFine PROCEDURE show_progress
4080 INK 7
4090 CLS
4100 FOR ip=1 TO i
4110 CURSOR P(ip,1),P(ip,2),-6,-4 :PRINT ip
4120 END FOR ip
4130 IF i < mp THEN
4140 INK 4: CURSOR P(i+1,1),P(i+1,2),-6,-4 :PRINT (i+1)
4150 CIRCLE P(i+1,1),P(i+1,2),8/zoom
4160 INK 7
4170 ELSE
4180 INK 2: CURSOR P(i,1),P(i,2),-6,-4 :PRINT (i):INK 7
4190 END IF
4200 FOR ip=1 TO na
4210 LINE ar(ip,1),ar(ip,2) TO ar(ip,3),ar(ip,4)
4220 END FOR ip
4230 END DEFine show_progress
4240 :
4250 DEFine PROCEDURE sort_pts
4260 REMark uses LRESPR'd SORT
4270 DIM tag$(mp-1)
4280 I_FILL tag$,1,1
4290 DIM P_x(mp)
4300 FOR i = 1 TO mp
4310 REMark based distance from center of window
4320 P_x(i) = ((P(i,1)-lx/2)^2 + (P(i,2)-ly/2)^2)
4330 END FOR i
4340 SORT P_x , 1, tag$
4350 DIM pt(mp,2)
4360 FOR i = 0 TO mp-1
4370 pt((i+1),1)=P(tag$(i),1)
4380 pt((i+1),2)=P(tag$(i),2)
4390 END FOR i
4400 FOR i = 1 TO mp
4410 P(i,1)=pt(i,1) :P(i,2) = pt(i,2)
4420 END FOR i
4430 DIM pt(0)
4440 END DEFine sort_pts
4450 :
4460 DEFine PROCEDURE make_circle
4470 LOCAL i
4480 REMark add a center point ?
4490 REMark or else nudge points and/or sort_points !
4500 mp = mp + cntr_pt
4510 num_pts = mp
4520 DIM P(mp,2)
4530 P(cntr_pt,1)=lx/2 : P(cntr_pt,2) = ly/2
4540 FOR i = (1+cntr_pt)-1 TO mp-1
4550 angl = ((2*PI)/(mp-cntr_pt))*(i-cntr_pt)
4560 jog = (RND - .5) * 2 * (1-cntr_pt)
4570 P(i+1,1) = lx/2 + (((1-margin)*ly/2)+jog)*COS(angl)
4580 P(i+1,2) = ly/2 + (((1-margin)*ly/2)+jog)*SIN(angl)
4590 END FOR i
4600 END DEFine make_circle
4610 :
4620 DEFine PROCEDURE make_spiral(wraps)

```

```

4630 LOCAL i, angl
4640 FOR i = 0 TO mp-1
4650 angl = (wraps*2*PI/mp) * i * cw
4660 IF io = 1 THEN
4670 P(i+1,1) = lx/2 + (((i+1)/mp) * ((1-margin)*ly/2) * COS(angl))
4680 P(i+1,2) = ly/2 + (((i+1)/mp) * ((1-margin)*ly/2) * SIN(angl))
4690 END IF
4700 IF io = -1 THEN
4710 P(i+1,1) = lx/2 + (((i-1)/mp) * ((1-margin)*ly/2) * COS(angl))
4720 P(i+1,2) = ly/2 + (((i-1)/mp) * ((1-margin)*ly/2) * SIN(angl))
4730 END IF
4740 END FOR i
4750 END DEFine make_spiral
4760 :
4770 DEFine PROCedure make_grid
4780 LOCAL i,j
4790 REMark work out factors if any , truncate ?
4800 REMark allow for input of across and down
4810 REMark ambitious hexagonal(triangular) option ?
4820 IF NOT rc THEN
4830 d_down = INT(SQRT(mp))
4840 a_cross = INT((mp/d_down)+.5)
4850 END IF
4860 mp = a_cross * d_down : num_pts = mp
4870 DIM P(mp,2)
4880 count = 0
4890 FOR i = 1 TO d_down
4900 FOR j = 1 TO a_cross
4910 count = count + 1
4920 P(count,1)=j*(lx/a_cross) - lx/(a_cross*2) + (RND -.5)
4930 P(count,2)=i*(ly/d_down) - ly/(d_down*2) + (RND -.5)
4940 END FOR j
4950 END FOR i
4960 bb = 1 : bc = 1 : set_boundary
4970 END DEFine make_grid
4980 :
4990 DEFine PROCedure number_points
5000 LOCAL i
5010 FOR i = 1 TO mp
5020 CURSOR P(i,1),P(i,2),-6,-4 : PRINT i
5030 END FOR i
5040 END DEFine number_points
5050 :
5060 DEFine FuNction Kahanequad(a, b, c)
5070 LOCAL s
5080 s = SQRT( (b*b) - (4*a*c))
5090 x_1 = (2*c)/(-b -SGN(b)*s)
5100 x_2 = c/(a*x_1)
5110 RETURN x_1
5120 RETURN x_2
5130 END DEFine :REMark Kahanequad
5140 :
5150 DEFine PROCedure mediantC
5160 LOCAL bm
5170 FOR f_b = 2
5180 xm = (x1+x2)/2 : ym = (y1+y2)/2
5190 dx = x2 - x1 : dy = y2 - y1
5200 REMark is it inside the bounding circle ?
5210 IF ((xm-bc_x)^2 + (ym-bc_y)^2) < bc_r^2 THEN
5220 REMark special case, mediant is vertical line when dy = 0
5230 IF ABS(dy) < (tol2) THEN
5240 xa = xm : xb = xm : ydis = SQRT(bc_r^2 - (xm-bc_x)^2)
5250 ya = bc_y + ydis : yb = bc_y - ydis
5260 EXIT f_b
5270 END IF
5280 REMark special case, mediant is horizontal line when dx = 0
5290 IF ABS(dx) < (tol2) THEN
5300 ya = ym : yb = ym : xdis = SQRT(bc_r^2 - (ym - bc_y)^2)
5310 xa = bc_x + xdis : xb = bc_x - xdis
5320 EXIT f_b
5330 END IF
5340 IF dy THEN
5350 mm = -dx/dy : bm = ym - mm * xm
5360 k_a = 1 + mm*mm
5370 k_b = 2 * (bm*mm -bc_x -bc_y*mm)
5380 k_c = -2*bc_y*bm + bm*bm + bc_x*bc_x + bc_y*bc_y - bc_r*bc_r
5390 xa = Kahanequad (k_a, k_b, k_c)
5400 xb = x_2
5410 ya = mm*xa + bm : yb = mm*xb + bm
5420 EXIT f_b
5430 END IF
5440 ELSE
5450 PRINT #0 ;'point outside bounding circle' : STOP
5460 END IF
5470 END FOR f_b
5480 PRINT#0;'C';
5490 END DEFine mediantC
5500 :
5510 DEFine PROCedure introduction
5520 WTV : CSIZE 1,0 : PAPER 0 : INK 7 : CLS : CLS# 0
5530 PRINT
5540 PRINT " A Voronoi diagram is made from a set of points"
5550 PRINT " You choose how you wish to have the points placed;"
5560 PRINT " randomly, in a circle, or a spiral, or a grid."
5570 PRINT " You will also have many other options to select."
5580 PRINT " during a review process"
5590 PRINT " You can see the 'work-in-progress' and"
5600 PRINT " follow the building of edges at an"
5610 PRINT " interval of your choice"
5620 PRINT",," E N J O Y ! "
5630 PRINT\\,"Please use a light touch on the keys"
5640 PRINT #0\\,"Please touch [SPACE BAR] to continue"
5650 PAUSE
5660 first_menu
5670 END DEFine introduction
5680 :
5690 DEFine PROCedure first_menu
5700 REPEAT get_pat_num
5710 CLS : CLS# 0
5720 PRINT \\," What pattern of points would you like ?"
5730 PRINT \," 1 - Random "\\," 2 - Circle "
5740 PRINT \," 3 - Spiral "\\," 4 - Grid"
5750 PRINT \," 5 - Data Sets "
5760 PRINT \\\\,"0 - What to Expect"
5770 PRINT #0\\," Please touch the NUMBER of your choice"
5780 pattern_num = CODE(INKEY$(-1))
5790 IF pattern_num >47 AND pattern_num < 54 : EXIT get_pat_num
5800 END REPEAT get_pat_num
5810 pattern_num = 0 + (CHR$(pattern_num))
5820 IF NOT(pattern_num) : what_to_expect
5830 rc = 0
5840 SElect ON pattern_num
5850 = 0 : what_to_expect
5860 = 1 : pat$ = "Random" : random_menu
5870 = 2 : pat$ = "Circle" : circle_menu
5880 = 3 : pat$ = "Spiral" : spiral_menu
5890 = 4 : pat$ = "Grid" : grid_menu
5900 = 5 : pat$ = "Data set " : data_menu
5910 = REMAINDER : STOP
5920 END SElect
5930 get_how_many
5940 review_selection
5950 V2D
5960 choose_next
5970 END DEFine first_menu
5980 :
5990 DEFine PROCedure second_chance
6000 RANDOMISE r_seed$
6010 review_selection
6020 IF pattern_num = 5 : pat$ = 'Data set ' :get_data
6030 V2D
6040 choose_next
6050 END DEFine second_chance
6060 :
6070 DEFine PROCedure random_menu
6080 CLS : CLS# 0
6090 PRINT",," R A N D O M "\\
6100 PRINT\" You may select a seed for the Random Numbers"
6110 PRINT\" or accept the default number of 42"
6120 PRINT #0\\,'Please enter a number for the seed'
6130 INPUT #0\\,'or just touch [ENTER] to accept 42 as a default
';r_seed$
6140 IF r_seed$="" : r_seed$ = '42'
6150 RANDOMISE r_seed$
6160 PRINT\" The Random Seed is ";r_seed$
6170 PRINT \" points can fit into a [R]ectangle"
6180 PRINT" or you can fit them into a [C]ircle"
6190 REPEAT get_r_or_c
6200 CLS#0
6210 PRINT#0\\,' Please touch [R] or [C] to select'
6220 PRINT #0\\," [R]ectangle or [C]ircle ?"
6230 r_or_c$ = INKEY$(-1)
6240 IF r_or_c$='r' OR r_or_c$='c' :EXIT get_r_or_c
6250 END REPEAT get_r_or_c
6260 IF r_or_c$='r' :PRINT\" Rectangle was selected"
6270 IF r_or_c$='c' :PRINT\" Circle was selected"
6280 END DEFine random_menu
6290 :
6300 DEFine PROCedure circle_menu
6310 REMark circle menu with choice of center point
6320 REMark and default (or not) of sorting points
6330 CLS : CLS # 0

```

# RWAP SOFTWARE

**PWord English Dictionary v1.0 £15**

The ultimate UK english dictionary with over HALF A MILLION WORDS, compiled by Paul Merdian who compiled the Mega dictionary for DP's Speelchecker. Due to the sheer size, a Super Gold Card is the minimum requirement.

Two versions are available: QTYP dictionary only on HD disk - £10 CD containing ASCII list, QTYP version, Solvit Plus (from Just Words) and the dictionary in the solvit format, cost £15.

**QL Cash Trader v3.7 £5**

A well established accounts package for the small to medium sized business, including automatic generation of profit & loss account, balance sheet, VAT returns, reports and analysis for audit trails and management decisions. Previously sold for over £100.\*

**QL Payroll v3.5 £5**

Manage a payroll for a small to medium sized business. Handles up to 99 employees easily, producing P45s and P60s as well as the payslips on a monthly or weekly basis. Calculates tax and national insurance and is easy to update to take account of the current tax year rules.

**Sidewriter v1.08 £10**

**Image D v1.03 £10**

**Q-Help v1.06 £10**

**Q-Index v1.05 £5**

Four excellent programs to assist the QL user.

Sidewriter: Produce landscape printouts on Epson printers.

Image D: Produce 3D pictures of objects.

Q-Help: on-screen help for SuperBASIC commands.

Q-Index: look up keywords related to topics.

See earlier adverts for more details.

**ProForma ESC/P2 Drivers v1.04 £8**

New improved colour and monochrome printer drivers, providing up to 720dpi for all programs written for use with ProWesS, such as LineDesign and Paragraph. Works on all Epson inkjet printers which support binary mode compression (740, 850 and 900 models at least). 1440 dpi to follow.

**QL Genealogist v3.26 £20**

**Genealogy For Windows £50**

Store your family tree for posterity. Add individuals with details of their parents and children, watch all of those links build up into a formal family tree layout. Text files and pictures may also be linked to individuals as well as notes and events, making this the perfect way to preserve the history of your family. QL version now supports FileInfo II and QMenu as well as allowing you to link both male and female trees. Sample tree of the Royal family since 1066 included. PC version is event driven - enter the details as they appear in documents and it generates the tree from these. QL data and GEDCOM can be transferred to the PC version. Upgrade to latest PC version (v5.21) for £8 Both programs easy to use and complete with a step by step tutorial.

\*\* QL USERS upgrade to PC version for £25 ONLY \*\*

**D-Day MKII v3.04 £10**

**Grey Wolf v1.8 £8**

**War In The East MKII v1.24**

**(Upgrade Only) £5**

For the gaming enthusiast - D-Day is a classic table top wargame for one or two players - you control either the Allies or the Axis forces during WWII. With the ability to define your own army set ups and a choice of 4 different scenarios, this should keep you entertained for a while. Grey Wolf is a graphical simulation of a submarine - can you sink the enemy shipping whilst avoiding their planes and destroyers??

**Q-Word \*COMING SOON\* £1ba**

The ultimate word game for the QL - you are given a grid of letters and need to link letters together to form as many words as possible. Points are based on both the number of words and their length, as well as letters used. As you use a letter, it is removed from the grid, with the object to clear the grid.

Using high colour graphics on all systems which support more than 8 colours (including Aurora), background music and much more, this will keep you entertained for a long time.

**SBASIC/SuperBASIC Reference Manual £40**

Updates £6 each, £10 for 2 (Current Version - Rel 4)

Have you ever tried to write a program, but been lost as to the means of performing a certain action? This Reference Manual provides you with a full description and examples of how to use all of the keywords found on each of the different QLs, plus SMSQ/e, Toolkit II and many different public domain toolkits. Details of any possible problems are provided, together with descriptions of how to use the device drivers and how to ensure that your programs are compatible across the range of QL platforms. This book is ideal for all QL users and is kept up to date with regular updates. \*\* Currently Out of Print \*\*

**QL Cosmos v2.04 £5**

Ever wondered what the stars in the sky looked like 100 years ago? Or, maybe you want to learn the constellations and names of what you see in the sky. This is the program for you - generates pictures of the stars and planets for any given place or time and provides details on these objects. Includes Halley's Comet, the Moon and the Solar System planets.

**Q-Route v2.00 £25**

**Upgrade from v1.xx £5**

The latest version of this popular route finding program. Find the quickest route or the shortest route between any two places, using roads. A wide range of maps is available for this program (see elsewhere in this advert). The program is easy and quick to use. You can even add your own places and roads to the maps to include local detail.

**Flashback SE v2.03 (Upgrade only) £5**

The ultimate database program - extremely fast and flexible, easy to use, updated to cope with the latest versions of the QL operating system and still maintained. A report module is included to allow you to format output in any way, including mail-merge. Unfortunately only available as an upgrade from the original version (original still available from Sector Software).

**Return To Eden v3.08 £10**

**Nemesis MKII v2.03 £8**

**The Prawn v2.01 £8**

**Horrorday v3.1 £8**

**West v2.00 £5**

**The Lost Kingdom of Zkul v2.01 £5**

A wealth of QL adventures - mainly text only.

Save the Galaxy from the ambitions of the evil dictator Nemesis.

Battle against werewolves and dracula look-alikes on a Hammer Horror set in the comical Horrorday.

Take the part of a prawn with a hangover, lost in a strange land in the hilarious Prawn.

Solve a bank-robbery by fighting the bad guys and collecting the loot in real-time old West.

Battle countless dwarves in the atmospheric Lost Kingdom of Zkul.

Return to Eden is a massive adventure over 3 disks with colourful graphics - control 3 characters in their quest to find the missing Prince.

All six adventures are available together for only £25.

A range of games to keep both the young and the young at heart amused. Some are old favourites, like Golf and a pub quiz program (500+ questions). Others are fast, colourful arcade games. Flight simulator also now available. Plenty of variation and skill required - what more can you ask for? All 6 programs only £28.

**Open Golf v5.20 £8**  
**QuizMaster II v2.07 £5**  
**Stone Raider II v2.00 £5**  
**Hoverzone v1.2 £5**  
**Deathstrike v1.5 £5**  
**Flightdeck v1.05 £10**

The latest maps for Q-Route. Maps of various areas of Britain have been created by cutting them out of Big Britain Map - they will use less memory and can contain more detail. Areas covered: Scotland, NE England, NW England, S&W Yorkshire, Wales & Derbyshire, London area and South England. Latest version of Q-Route is recommended.

**£2**  
**£5**  
**£2 ea.**  
**£5**  
**£2**  
**£2**

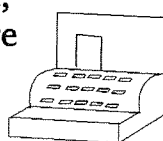
**Britain map v1.11**  
**BIG Britain Map (needs 2MB) v2.03**  
**Various Britain Area Maps (ask for details)**  
**Ireland Map v1.00**  
**Belgium Map v1.01**  
**Catalonia Map v1.03**



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http://hometown.aol.co.uk/RWAPSoftware



\* Also known as Trading Accounts

Cheques in £sterling  
 payable to 'R.Mellor'

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6340 PRINT\,,"C I R C L E"\
6350 PRINT\ "Would you like to add a central point ?"
6360 PRINT #0;\,"Y = with, N = without"
6370 PRINT #0;\,"Please touch Y or N"
6380 cp$= INKEY$(-1)
6390 IF cp$='y' THEN
6400   cntr_pt = 1
6410 ELSE
6420   cntr_pt = 0
6430 END IF
6440 END DEFine circle_menu
6450 :
6460 DEFine PROCedure spiral_menu
6470 CLS : CLS#0
6480 PRINT \,," S P I R A L"\
6490 REMark from center out or from edge inward ?
6500 REMark clockwise or counter_clockwise ?
6510 io = 0
6520 PRINT\ " -> Spiral out from center "
6530 PRINT\ " <- Spiral in toward center"
6540 REPEAT get_inout
6550 CLS#0
6560 PRINT#0;\,"Please touch right arrow key -> for growth outward"
6570 PRINT#0;\,"Please touch left arrow key <- for growth inward"
6580 io$ = INKEY$(-1)
6590 IF io$= CHR$(192):io = -1
6600 IF io$= CHR$(200):io = +1
6610 IF io : EXIT get_inout
6620 END REPEAT get_inout
6630 CLS#0
6640 PRINT\ " Clockwise rotation"
6650 PRINT\ " @ Counter clockwise rotation"
6660 REPEAT get_cw
6670 CLS#0
6680 cw = 0
6690 PRINT#0;\,"Please touch down arrow for clockwise"
6700 PRINT#0;\,"Please touch up arrow for counter-clockwise"
6710 cw$ = INKEY$(-1)
6720 IF cw$= CHR$(216) : cw = -1
6730 IF cw$= CHR$(208) : cw = +1
6740 IF cw : EXIT get_cw
6750 END REPEAT get_cw
6760 CLS#0
6770 REMark how many wraps ?
6780 PRINT\ " The spiral may wrap only part way"
6790 PRINT\ " or any number of times around the center"
6800 PRINT\ " Please [ENTER] a number"
6810 INPUT#0;\," How many wraps in the spiral ? ";wraps
6820 END DEFine spiral_menu
6830 :
6840 DEFine PROCedure grid_menu
6850 CLS : CLS#0
6860 rc = 0
6870 PRINT\,," G R I D"\
6880 REPEAT get_input
6890 PRINT \ " You may input a total number of points"
6900 PRINT " that will be [A]bout what you get more or less"
6910 PRINT " or you may [S]pecify rows and columns"
6920 PRINT \ " [A]pproximate number"" [S]pecify rows & columns"
6930 PRINT \ " Please touch A or S to select"
6940 rc$=INKEY$(-1)
6950 IF rc$='a' OR rc$='s' : EXIT get_input
6960 END REPEAT get_input
6970 IF rc$ = 's' THEN
6980   rc = 1
6990 REMark rectangular select number horizontally, vertically
7000 REPEAT get_a_d
7010   INPUT \ " how many rows of points ?","d_own
7020   INPUT \ " how many points in a row ?","a_cross
7030   mp = a_cross * d_own
7040   num_pts = mp
7050   IF mp < 2 THEN
7060     PRINT #0;"need more than just one point !"
7070   ELSE
7080     EXIT get_a_d
7090   END IF
7100 END REPEAT get_a_d
7110 END IF
7120 REMark hexagonal ? triangular ?
7130 END DEFine grid_menu
7140 :
7150 DEFine PROCedure get_how_many
7160 REMark all done if grid
7170 IF NOT (rc) AND pattern_num <> 5 THEN
7180 REPEAT how_many
7190   CLS # 0
7200 PRINT\ " How many points would you like ?"
7210 INPUT#0 ; " Please [ENTER] the number of points wanted
";num_pts
7220 mp = num_pts
7230 IF pat$ = 'Grid' :approx_grid = mp
7240 IF mp > 1 : EXIT how_many
7250 REMark error trap if less than 2
7260 END REPEAT how_many
7270 CLS#0
7280 ELSE
7290   num_pts = mp
7300 END IF
7310 END DEFine get_how_many
7320 :
7330 DEFine PROCedure review_selection
7340 REPEAT review
7350   CLS : CLS#0
7360   change = 0
7370   FOR all_review = 1
7380     show_defaults
7390     PRINT\ "[A]"," [A]ccept ALL defaults by touching [A]"
7400     PRINT#0;\,"Please touch [ENTER] to review all options"
7410     PRINT#0;\,"To make a selective change touch a [letter]"
7420     rev$= INKEY$(-1) : rev = CODE ( rev$ )
7430     IF rev$='a' : EXIT all_review
7440     IF rev$='i' : first_menu
7450 :
7460     REMark pause option
7470     IF rev = 10 OR rev$='p' THEN
7480       CLS : CLS#0
7490       PRINT\,,"P A U S E   O P T I O N"
7500       IF (see_it_work) THEN
7510         PRINT \ " the program is set to pause every ";see_it_work;"
points"
7520       ELSE
7530         PRINT \ " the program is set to run without pauses"
7540       END IF
7550       PRINT \ " Do you wish to pause to see regions as they develop ?"
7560       PRINT #0;" Please touch Y to set/reset pause interval"
7570       PRINT #0;" Please touch N for no pausing"
7580       PRINT #0;" Please touch [SPACE BAR] to accept default"
7590       pa$ = INKEY$(-1)
7600       IF pa$='n' : see_it_work = 0
7610       IF pa$='y' THEN
7620         change = change + 1
7630       REPEAT pa_num
7640         CLS#0
7650         PRINT #0;"You can set the program to pause at"
7660         PRINT #0;"every Nth point, N being from 1 to ";mp
7670         INPUT#0;" how often do you wish to pause ? ";see_it_work
7680         IF see_it_work > 0 AND see_it_work <= mp : EXIT pa_num
7690       END REPEAT pa_num
7700       CLS#0
7710       END IF
7720       IF see_it_work THEN
7730         PRINT \ "program will pause every ";see_it_work;" points"
7740         PRINT "and then wait for you to touch [SPACE BAR] "
7750         PRINT#0;\,"Please touch [SPACE BAR]"
7760         PAUSE
7770       END IF
7780       END IF
7790 :
7800       REMark sorting option
7810       IF rev = 10 OR rev$='s' THEN
7820         sd$=' '
7830         REPEAT sort_or_not
7840           CLS : CLS#0
7850           PRINT \,"S O R T I N G"
7860           IF sor THEN
7870             PRINT \ " At present the points will be sorted"
7880             PRINT \ " based on their distance from the center"
7890           ELSE
7900             PRINT \ " At present the points will not be sorted"
7910           END IF
7920           PRINT \ " Do you wish to change the sorting default ?"
7930           PRINT #0;' Please touch Y to change sort option'
7940           PRINT #0;" Please touch [SPACE BAR] to accept default"
7950           IF sd$=' ' :EXIT sort_or_not
7960           sd$=INKEY$(-1)
7970           IF sd$='y' : sor = ABS(sor - 1) :change = change + 1
7980         END REPEAT sort_or_not
7990       END IF
8000 :
8010       IF rev = 10 OR rev$='m' THEN
8020         REMark margin option
8030         CLS :CLS #0
8040         cm$=' '
8050         PRINT \,"M A R G I N"

```



```

8060 PRINT " A margin around the window provides an empty border"
8070 PRINT " the present margin is:"\,margin;" as a ratio"
8080 PRINT "=" , "1/" ;(1/margin);" as a fraction"
8090 PRINT "=" , margin*100;" % as a percentage"
8100 PRINT " of the full window size"
8110 PRINT " Do you wish to change the margin around the edge ?"
8120 PRINT #0;' Please touch Y to change margin'
8130 PRINT #0;" Please touch [SPACE BAR] to accept default"
8140 cm$ = INKEY$(-1)
8150 IF cm$ == 'y' THEN
8160 change = change + 1
8170 REPEAT get_marg
8180 CLS : CLS#0
8190 PRINT " A 50% margin would leave no room for points"
8200 PRINT " 0% margin would allow points to fill the window"
8210 PRINT " Thus the margin can range from 0 to .5 as a ratio "
8220 PRINT " ".05" would set the margin to .05 = 5% = 1/20 '
8230 PRINT " "1/20" would set the margin to 1/20 = .05 = 5% '
8240 PRINT " the margin can range from 0 to 50 as a percentage "
8250 PRINT " "5%" would set the margin to 5% = .05 = 1/20 '
8260 PRINT " you may also use the operands +, -, *, or /"
8270 PRINT " followed by a number"
8280 PRINT " to alter the existing margin "
8290 PRINT " /2" would halve the margin '
8300 PRINT " *2" would double the margin '
8310 PRINT " +.2" would increase the margin by .2 '
8320 PRINT " -.01" would reduce the margin by .01 '
8330 INPUT#0; " Please [ENTER] your choice ",margin$
8340 val_base = margin
8350 margin = VAL(margin$)
8360 IF margin > 0 AND margin < 1 : EXIT get_marg
8370 END REPEAT get_marg
8380 END IF
8390 END IF
8400 :
8410 REMARK tolerance options
8420 IF rev = 10 OR rev$=='t' THEN
8430 CLS:CLS#0
8440 ct$=''
8450 PRINT,"T O L E R A N C E S"
8460 PRINT " Tolerances for calculations are "\,1!!tol1;' =
1/' ;1/tol1
8470 PRINT "\,2!!tol2;' = ' ;1/tol2
8480 PRINT " Do you wish to change the tolerances ?"
8490 PRINT #0;' Please touch Y to change tolerance values'
8500 PRINT #0;" Please touch [SPACE BAR] to accept default values"
8510 ct$ = INKEY$(-1)
8520 IF ct$ == 'y' THEN
8530 CLS : CLS#0
8540 change = change + 1
8550 ct1$=''
8560 PRINT,"T O L E R A N C E S"
8570 PRINT " Tolerances for calculations are "\,1!!tol1;' =
1/' ;1/tol1
8580 PRINT "\,2!!tol2;' = ' ;1/tol2
8590 PRINT " tolerance 2 is usually smaller than tolerance 1"
8600 PRINT " do you wish to change tolerance 1 ?"
8610 PRINT #0;' Please touch Y to change tolerance 1 value'
8620 PRINT #0;" Please touch [SPACE BAR] to accept default value of
";tol1
8630 ct1$ = INKEY$(-1)
8640 IF ct1$ == 'y' THEN
8650 change = change + 1
8660 CLS : CLS#0
8670 PRINT,"T O L E R A N C E S"
8680 PRINT " Tolerances for calculations are "\,1!!tol1;' =
1/' ;1/tol1
8690 PRINT "\,2!!tol2;' = ' ;1/tol2
8700 PRINT " tolerance 2 is usually smaller than tolerance 1"
8710 PRINT " You may [ENTER] a value in any of the following forms;"
8720 PRINT '2^-8 .00002 1/600 .03% '
8730 PRINT " You may also alter the existing value by using"
8740 PRINT '+, -, /, or * followed by a number'
8750 val_base = tol1
8760 INPUT#0; " Please [ENTER] value for tolerance 1 ";val$
8770 tol1 = VAL(val$)
8780 PRINT " Tolerance 1 is now ";tol1;' = 1/' ;1/tol1
8790 END IF
8800 :
8810 CLS#0
8820 ct2$=''
8830 PRINT " do you wish to change tolerance 2 ?"
8840 PRINT #0;' Please touch Y to change tolerance 2 value'
8850 PRINT #0;" Please touch [SPACE BAR] to accept default value
of ";tol2
8860 ct2$ = INKEY$(-1)
8870 IF ct2$ == 'y' THEN
8880 change = change + 1
8890 CLS : CLS#0
8900 PRINT,"T O L E R A N C E S"
8910 PRINT " Tolerances for calculations are "\,1!!tol1;' =
1/' ;1/tol1
8920 PRINT "\,2!!tol2;' = 1/' ;1/tol2
8930 PRINT " tolerance 2 is usually smaller than tolerance 1"
8940 PRINT " You may [ENTER] a value in any of the following forms;"
8950 PRINT '2^-8 .00002 1/600 .03% '
8960 PRINT " You may also alter the existing value by using"
8970 PRINT '+, -, /, or * followed by a number'
8980 val_base = tol2
8990 INPUT#0; "Please [ENTER] value for tolerance 2 ";val$
9000 tol2 = VAL(val$)
9010 PRINT " Tolerance 2 is now ";tol2;' = 1/' ;1/tol2
9020 END IF
9030 END IF
9040 END IF
9050 :
9060 REMARK boundary options
9070 IF rev = 10 OR rev$=='b'
9080 CLS: CLS#0
9090 cb$=''
9100 PRINT,"B O U N D A R Y"
9110 IF mC = 1 THEN
9120 PRINT " The outer boundary is circular"
9130 PRINT " and is ";bc;" times as large as the window"
9140 ELSE
9150 PRINT " The outer boundary is rectangular"
9160 PRINT " and is ";bb;" times as large as the window"
9170 END IF
9180 PRINT " Do you wish to change the boundary shape and/or size
? "
9190 PRINT #0;" Please touch Y to change boundary"
9200 PRINT #0;" Please touch [SPACE BAR] to accept defaults"
9210 cb$ = INKEY$(-1)
9220 IF cb$ == 'y' THEN
9230 change = change + 1
9240 cb1$=''
9250 CLS#0
9260 PRINT " Do you wish to change boundary shape ?"
9270 PRINT #0;" Please touch Y to change boundary shape"
9280 PRINT #0;" Please touch [SPACE BAR] to accept default"
9290 cb1$ = INKEY$(-1)
9300 IF cb1$ == 'y' THEN
9310 change = change + 1
9320 CLS#0
9330 mC = ABS(mC-1)
9340 PRINT " then shape is now ";
9350 IF mC : PRINT "circular"
9360 IF NOT(mC) : PRINT "rectangular"
9370 END IF
9380 PRINT " the present size is ";(bc *mC) + (bb *(NOT(mC)));
9390 PRINT " as large as the window"
9400 PRINT " Do you wish to change boundary size ?"
9410 CLS#0
9420 cb2$=''
9430 PRINT #0;" Please touch Y to change boundary size"
9440 PRINT #0;" Please touch [SPACE BAR] to accept default"
9450 cb2$ = INKEY$(-1)
9460 IF cb2$ == 'y' THEN
9470 change = change + 1
9480 REPEAT get_bsize
9490 CLS :CLS#0
9500 PRINT " the present size is ";(bc *mC) + (bb *(NOT(mC)));
9510 PRINT " as large as the window"
9520 PRINT " The boundary should be at least as large"
9530 PRINT " as the window (less the margin)"
9540 PRINT " the ideal boundary would be at infinity"
9550 PRINT " but factors from 1 to 35 may do"
9560 PRINT " small values will distort the convex hull"
9570 PRINT " large values may give errors in calculations"
9580 PRINT " A limited flexibility is allowed for your input"
9590 PRINT " You may simply [ENTER] a number between 0 and 35"
9600 PRINT " You may [ENTER] { +, -, *, OR / } and a number"
9610 PRINT " to modify the existing border size "
9620 PRINT '\limits are >';(1-2*margin);' to <100'
9630 INPUT#0;" Please enter number "; bound_size$
9640 val_base = (bc * mC) + (bb * (NOT(mC)))
9650 bound_size = VAL(bound_size$)
9660 IF (bound_size > (1-(2*margin))) AND (bound_size < 100):EXIT
get_bsize
9670 END REPEAT get_bsize
9680 IF mC THEN
9690 bc = bound_size
9700 ELSE
9710 bb = bound_size

```

```

9720 END IF
9730 set_boundary
9740 PRINT " the present boundary is ";
9750 IF mC : PRINT "circular"
9760 IF NOT(mC):PRINT "rectangular"
9770 PRINT " the present size is ";(bc *mC) + (bb *(NOT(mC)));
9780 PRINT " as large as the window"
9790 PRINT #0,"Please touch [SPACE BAR] "
9800 PAUSE :
9810 END IF
9820 END IF
9830 END IF
9840 :
9850 CLS#0
9860 IF change THEN
9870 PRINT #0;\,change;" change";
9880 IF change:1: PRINT #0;"s";
9890 PRINT #0;" made"
9900 PRINT #0;\,'Please touch [SPACE BAR] to review '
9910 ELSE
9920 PRINT #0\\,'Please touch [SPACE BAR] to continue'
9930 END IF
9940 PAUSE
9950 IF NOT(change) : EXIT review
9960 END REPEAT review
9970 END FOR all_review
9980 END DEFINE review_selection
9990 :
10000 DEFINE FuNction VAL(val$)
10010 LOCAL slash,n_1,n_2,star,plus,minus,pct,e10
10020 REMark is there a good parser handy ?
10030 REMark doesn't a good 'expression evaluator' already exist ?
10040 REMark maybe in the QUANTA library ?
10050 :
10060 FOR val_parse = 1
10070 :
10080 REMark to simply modify pre-existing value (val_base)
10090 IF LEN(val$)>1 AND val_base THEN
10100 IF val$(1)='+' : val_u = val_base + val$(2 TO) : EXIT
val_parse
10110 IF val$(1)='-': val_u = val_base - val$(2 TO) : EXIT
val_parse
10120 IF val$(1)='*' : val_u = val_base * val$(2 TO) : EXIT
val_parse
10130 IF val$(1)='/': val_u = val_base / val$(2 TO) : EXIT
val_parse
10140 END IF
10150 :
10160 REMark handle powers early to catch minus sign in exponent
10170 pow = ' ' INSTR(val$)
10180 IF pow > 1 THEN
10190 n_1 = 0 + val$(1 TO pow-1)
10200 n_2 = 0 + val$(pow + 1 TO)
10210 val_u = (n_1) ^ (n_2)
10220 EXIT val_parse
10230 END IF
10240 :
10250 REMark handle multiplications as n_1 * n_2
10260 star = '*' INSTR(val$)
10270 IF star > 1 THEN
10280 n_1 = val$(1 TO star-1)
10290 n_2 = val$(star + 1 TO)
10300 val_u = n_1 * n_2
10310 EXIT val_parse
10320 END IF
10330 :
10340 REMark handle fractions as n_1 / n_2
10350 slash = '/' INSTR(val$)
10360 IF slash > 1 THEN
10370 n_1 = val$(1 TO slash-1)
10380 n_2 = val$(slash + 1 TO)
10390 val_u = n_1/n_2
10400 EXIT val_parse
10410 END IF
10420 :
10430 REMark handle E exponents with + - values
10440 REMark before simple plus minus pairs
10450 e10 = 'e' INSTR(val$)
10460 IF e10 THEN
10470 n_1 = val$(1 TO e10 - 1)
10480 n_2 = val$(e10 + 1 TO)
10490 val_u = n_1 * 10^n_2
10500 EXIT val_parse
10510 END IF
10520 :
10530 REMark handle subtractions as n_1 - n_2
10540 minus = '-' INSTR(val$)
10550 IF minus > 1 THEN
10560 n_1 = val$(1 TO minus-1)
10570 n_2 = val$(minus + 1 TO)
10580 val_u = n_1 - n_2
10590 EXIT val_parse
10600 END IF
10610 :
10620 REMark handle additions as n_1 + n_2
10630 plus = '+' INSTR(val$)
10640 IF plus > 1 THEN
10650 n_1 = val$(1 TO plus-1)
10660 n_2 = val$(plus + 1 TO)
10670 val_u = n_1 + n_2
10680 EXIT val_parse
10690 END IF
10700 :
10710 REMark EXP, LN, LOG10, SQRT
10720 REMark PI, RAD, DEG
10730 REMark SIN, COS, TAN, COT
10740 REMark ASIN, ACOS, ATAN, ACOT
10750 :
10760 REMark try SQUARE ROOT
10770 IF val$(1 TO 4) == 'SQRT' THEN
10780 n_1 = '(' INSTR(val$)
10790 n_2 = ')' INSTR(val$)
10800 val_u = SQRT(val$(n_1+1 TO n_2-1))
10810 EXIT val_parse
10820 END IF
10830 :
10840 REMark as %
10850 pct = '%' INSTR(val$)
10860 IF pct : val_u = val$(1 TO pct-1)/100 : EXIT val_parse
10870 :
10880 REMark handle nesting (),[],{} ? not yet
10890 :
10900 REMark could it be just a regular ordinary number string ?
10910 REMark decimal points are allowed !
10920 val_u = val$
10930 :
10940 END FOR val_parse
10950 RETURN val_u
10960 END DEFINE : REMark FuNction VAL
10970 :
10980 DEFINE PROCEDURE what_to_expect
10990 CLS : CLS#0
11000 PRINT,"W H A T T O E X P E C T"
11010 PRINT " As the program goes along a green circle"
11020 PRINT " with the number of the next point is shown"
11030 PRINT " the final point is shown in red"
11040 PRINT " If you choose to pause and see work in progress"
11050 PRINT " green lines show new edges added and "
11060 PRINT " red lines show edges to be removed "
11070 PRINT " In the lower window, the activity is shown as"
11080 PRINT " each point is considered:"
11090 PRINT," NN = the number of the point"
11100 PRINT," . = find boundary "
11110 PRINT," \ = remove edge "
11120 PRINT," | = terminate edge "
11130 PRINT," / = suppress edge "
11140 PRINT," R = Mediant to Rectangle "
11150 PRINT," C = MediantC to Circle "
11160 PRINT," X = Intersection of lines "
11170 PRINT#0;\,"Please touch [SPACE BAR] " :PAUSE
11180 page2
11190 page3
11200 first_menu
11210 END DEFINE what_to_expect
11220 :
11230 REMark page 2 of what to expect
11240 DEFINE PROCEDURE page2
11250 CLS : CLS#0
11260 PRINT " After showing the Voronoi diagram, the"
11270 PRINT " Delaunay triangulation will be shown."
11280 PRINT " Then a recap, (while Voronoi vertices are collected)"
11290 PRINT " then a prompt for the Voronoi vertices to be shown."
11300 PRINT " A new menu will appear in the lower window so that:"
11310 PRINT " You will be able to review the [S]ame set of"
11320 PRINT " points, change parameters, and rerun them"
11330 PRINT " You can select a new [P]attern with the"
11340 PRINT " same [P]arameters, or you may choose to"
11350 PRINT " [R]un which will [R]eset all default options"
11360 PRINT " You may also repeatedly [C]lear the screen,"
11370 PRINT " show the [V]oronoi diagram and/or the "
11380 PRINT " [D]elaunay triangulation and/or point [N]umbers"
11390 PRINT #0;\ " Please touch [SPACE BAR]"

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# Z88

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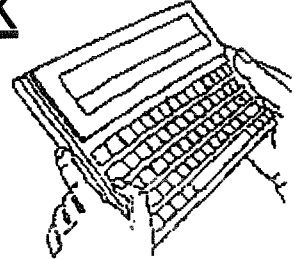
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11400 PAUSE
11410 END DEFine page2
11420 :
11430 DEFine PROCedure page3
11440 CLS: CLS#0
11450 PRINT "\" True Circles of points can be troublesome"
11460 PRINT " but we can fudge and nudge the points so "
11470 PRINT " that the circle is less than perfect."
11480 PRINT "\" It can also help to use the sort option"
11490 PRINT " when doing circles."
11500 PRINT "\" Truly regular Grids are also a problem"
11510 PRINT " so we nudge them as well."
11520 PRINT "\" The Grid menu will try to come close to"
11530 PRINT " the requested number of points, unless you"
11540 PRINT " specify the number of rows and columns."
11550 PRINT "\" If the program halts with an error message"
11560 PRINT " you can type in 'redo' & [ENTER] to try"
11570 PRINT " again with other parameters."
11580 PRINT #0;"\", \" Please touch [SPACE BAR]"
11590 PAUSE
11600 first_menu
11610 END DEFine page3
11620 :
11630 DEFine PROCedure redo
11640 recap
11650 second_chance
11660 END DEFine redo
11670 :
11680 REMark find vertices of voronoi diagram as a point set
11690 REMark use for creation of next voronoi diagram ?
11700 :
11710 DEFine PROCedure vertices
11720 LOCAL i
11730 PRINT #0;"getting vertices as a point set "
11740 REMark use ar(na, 1,2,3,4) to build point set
11750 REMark mark unique boundary points and duplication
11760 DIM VP(na*2,2)
11770 v = 0
11780 FOR i = 1 TO na
11790 v = v+1
11800 VP(v,1) = ar(i,1) : VP(v,2) = ar(i,2)
11810 v = v + 1
11820 VP(v,1) = ar(i,3) : VP(v,2) = ar(i,4)
11830 END FOR i
11840 :
11850 FOR i = 1 TO DIMN(VP)-1
11860 PRINT #0;"!!"
11870 match = 0
11880 FOR j = i+1 TO DIMN(VP)
11890 IF (VP(i,1) == VP(j,1)) AND (VP(i,2) == VP(j,2)) THEN
11900 match = match + 1
11910 END IF
11920 END FOR j
11930 VP(i,0)=match
11940 IF match < 2 : VP(0,match)=VP(0,match)+1
11950 END FOR i
11960 REMark what if point is outside the margin ?
11970 FOR i = 1 TO DIMN(VP)
11980 REMark PRINT #0;"!!"
11990 IF VP(i,0) = 1 THEN
12000 IF NOT(in_bounds(i)) THEN
12010 VP(i,0) = 0 : VP(0,1)=VP(0,1)-1
12020 END IF
12030 END IF
12040 END FOR i
12050 :
12060 REMark ready to put into P ?
12070 DIM pv(VP(0,1),2)
12080 v = 0
12090 FOR i = 1 TO DIMN(pv)
12100 REPEAT find1
12110 v = v + 1
12120 IF VP(v,0) = 1 :EXIT find1
12130 END REPEAT find1
12140 FOR j = 1 TO 2
12150 pv(i,j)=VP(v,j)
12160 END FOR j
12170 END FOR i
12180 :
12190 CLS#0
12200 PRINT #0;"\", \"Ready to show vertices"
12210 PRINT #0;"\", \"Please touch [SPACE BAR] to continue"
12220 PAUSE
12230 CLS#0 : CLS
12240 show_diagram
12250 FOR i = 1 TO DIMN(pv)
12260 CIRCLE pv(i,1),pv(i,2),8/zoom
12270 CURSOR pv(i,1),pv(i,2),-4,-5 : PRINT i
12280 END FOR i
12290 END DEFine vertices
12300 :
12310 REMark in_bounds ?
12320 DEFine FuNction in_bounds(i)
12330 inb = 1
12340 IF (r_or_c$ == 'c') THEN
12350 IF SQR(((lx/2)-VP(i,1))^2 + ((ly/2)-VP(i,2))^2) ,
((ly/2)*(1-margin)):inb = 0
12360 ELSE
12370 IF ((VP(i,1)<(lx*margin)) OR (VP(i,1)>(lx*(1-margin)))):inb=0
12380 IF ((VP(i,2)<(ly*margin)) OR (VP(i,2)>(ly*(1-margin)))):inb=0
12390 END IF
12400 RETURN inb
12410 END DEFine :REMark FuNction in_bounds
12420 :
12430 DEFine PROCedure show_input
12440 :
12450 IF pat$ == 'Random' THEN
12460 PRINT ' ';pat$;" with ";num_pts;' points ';
12470 IF r_or_c$='r' : PRINT 'in a Rectangular region'
12480 IF r_or_c$='c' : PRINT 'in a Circular region'
12490 END IF
12500 :
12510 IF pat$ == 'Circle' THEN
12520 PRINT ' ';pat$;" with ";num_pts;' points ';
12530 IF cntr_pt THEN
12540 PRINT " with a center point"
12550 ELSE
12560 PRINT " without a center point"
12570 END IF
12580 END IF
12590 :
12600 IF pat$ == 'Spiral' THEN
12610 PRINT ' ';pat$;" with ";num_pts;' points '
12620 PRINT ' ';wraps;' wraps wound ';
12630 IF cw = 1 : PRINT 'counter-clockwise ';
12640 IF cw = -1 : PRINT 'clockwise ';
12650 IF io = 1 : PRINT " outward "
12660 IF io = -1 : PRINT " inward "
12670 END IF
12680 :
12690 IF pat$ == 'Grid' THEN
12700 make_grid
12710 PRINT ' ';pat$;" with ";mp;' points in ';
12720 PRINT 'down';" rows and ";a_cross;" columns"
12730 IF rc : PRINT, " as you specified"
12740 IF NOT(rc) : PRINT, " you asked for ";approx_grid;
12750 IF NOT(re) : PRINT " points and were given ";mp
12760 END IF
12770 :
12780 IF pat$(1 TO 4) == 'Data' :PRINT ' ';pat$
12790 END DEFine show_input
12800 :
12810 DEFine PROCedure show_defaults
12820 PRINT"[I]","I N P U T C H O I C E \",
12830 show_input
12840 PRINT"[P]","P A U S E O P T I O N"
12850 IF (see_it_work) THEN
12860 PRINT, " the program is set to pause every ";see_it_work;"
points"
12870 ELSE
12880 PRINT, " the program is set to run without pauses"
12890 END IF
12900 PRINT "[S]","S O R T I N G"
12910 IF sor THEN
12920 PRINT, " At present the points will be sorted"
12930 PRINT, " based on their distance from the center"
12940 ELSE
12950 PRINT, " At present the points will not be sorted"
12960 END IF
12970 PRINT "[M]","M A R G I N"
12980 PRINT, " the present margin is:"\", \"!!margin!!!
12990 PRINT="!!!!1"/";(1/margin)!!!
13000 PRINT="!!!! margin*100;" % "
13010 PRINT"[T]","T O L E R A N C E S"
13020 PRINT, " Tolerances for calculations are: "
13030 PRINT, ' # 1 ';tol1;' = 1 part in ';1/tol1
13040 PRINT, ' # 2 ';tol2;' = 1 part in ';1/tol2
13050 PRINT"[B]","B O U N D A R Y"
13060 IF mC = 1 THEN
13070 PRINT, " The outer boundary is circular"
13080 PRINT, " and is ";bc;" times as large as the window"
13090 ELSE

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13100 PRINT , " The outer boundary is rectangular"
13110 PRINT , " and is ";bb;" times as large as the window"
13120 END IF
13130 END DEFine show_defaults
13140 :
13150 DEFine PROCedure recap
13160 INK 7 : CLS : CLS#0
13170 show_input
13180 PRINT ' ;mp;' points took ;elapsed;' seconds'
13190 PRINT ' tolerance 1 was ;tol1;" = 1 part in ";1/tol1
13200 PRINT ' tolerance 2 was ;tol2;" = 1 part in ";1/tol2
13210 PRINT ' maximum stack used was ;msp(0)
13220 PRINT ' margin was ;margin;" = 1/";1/margin;" =
";margin*100;" %"
13230 PRINT ' ;na;' edges were found'
13240 PRINT ' ;na/mp;' edges per point'
13250 PRINT " the points were ";
13260 IF sor: PRINT'sorted': ELSE : PRINT'unsorted'
13270 IF mC: PRINT ' the bounding circle was size ;bc
13280 IF NOT(mC): PRINT ' the bounding box was size ;bb
13290 IF pattern_num = 1 : PRINT " Random Seed was ";r_seed$
13300 END DEFine recap
13310 :
13320 DEFine PROCedure data_menu
13330 CLS : CLS#0
13340 PRINT \, "DATA sets from the following are available: "
13350 PRINT \, '[C]atmog45C'
13360 PRINT \, '[G]reen-Sibson '
13370 PRINT \, '[B]owyer'
13380 PRINT \, '[P]reparata'
13390 PRINT \, '[O]'Rourke"
13400 PRINT \, '[K]lette'
13410 PRINT \, '[O]'Rourke"
13420 PRINT #0, "touch [boxed] key or "
13430 PRINT #0\ "[ESC] to Exit, [SPACE BAR] for first_menu"
13440 REPEAT get_set
13450 set$ = INKEY$( -1)
13460 IF set$ == 'c' OR set$ == 'g' : EXIT get_set
13470 IF set$ == 'b' OR set$ == 'p' : EXIT get_set
13480 IF set$ == 'o' OR set$ == 'k' : EXIT get_set
13490 IF set$ == 'r' : EXIT get_set
13500 IF set$ = CHR$(27) OR set$ = CHR$(32) : EXIT get_set
13510 END REPEAT get_set
13520 IF set$ = CHR$(32) : first_menu
13530 IF set$ = CHR$(27) : CLS : CLS#0 : STOP
13540 get_data
13550 END DEFine data_menu
13560 :
13570 DEFine PROCedure get_data
13580 IF set$ == 'c' : RESTORE 13890 : read_into_P
13590 IF set$ == 'g' : RESTORE 14030 : read_into_P
13600 IF set$ == 'b' : RESTORE 14150 : read_into_P
13610 IF set$ == 'p' : RESTORE 14260 : read_into_P
13620 IF set$ == 'o' : RESTORE 14410 : read_into_P
13630 IF set$ == 'k' : RESTORE 14530 : read_into_P
13640 IF set$ == 'r' : RESTORE 14650 : read_into_P
13650 END DEFine get_data
13660 :
13670 DEFine PROCedure read_into_P
13680 REMark P is array of N Delaunay Points
13690 REMark elements 1, 2 are the x, y values,
13700 REMark element 3 is a calculated z-value
13710 CLS#0 : READ mp : DIM P(mp,2)
13720 FOR i = 1 TO mp
13730 READ P(i,1)
13740 END FOR i
13750 FOR i = 1 TO mp
13760 READ P(i,2)
13770 END FOR i
13780 READ data_source$
13790 pat$ = pat$ & ' ' & data_source$
13800 num_pts = mp
13810 END DEFine read_into_P
13820 :
13830 REMark sets of DATA from references shown
13840 REMark Number of points first
13850 REMark then x-values for points
13860 REMark then y-values for points
13870 REMark then any string$ for data_source$
13880 :
13890 REMark Catmog45C figure 2 data
13900 REMark ref: "Voronoi (Thiessen) Polygons"
13910 REMark by B.N. Boots 1986
13920 REMark Institute of British Geographers
13930 REMark Geo Books, Norwich, UK
13940 DATA 10
13950 REMark double y - 40
13960 REMark DATA 38, 45, 70, 58, 92, 87, 115, 117, 113, 80
13970 DATA 76, 90, 140, 116, 184, 174, 230, 234, 226, 160
13980 REMark DATA 82, 61, 71, 52, 40, 66, 88, 55, 50, 89
13990 DATA 124, 82, 102, 64, 40, 92, 136, 70, 60, 138
14000 DATA "Catmog45C"
14010 REMark end of DATA from Catmog45C
14020 :
14030 REMark Green-Sibson Figure 1 data
14040 REMark ref: Computer Journal V 21 N 2 1978
14050 DATA 12
14060 REMark double, then add 50 to x-values
14070 REMark DATA 35, 81, 90, 62, 50, 50, 54, 82, 60, 51, 35, 61
14080 DATA 120, 212, 230, 174, 150, 150, 152, 214, 170, 152, 120,
172
14090 REMark double y-values, then subtract 10
14100 REMark DATA 89, 89, 81, 78, 74, 60, 58, 50, 43, 36, 34, 19
14110 DATA 168, 168, 152, 146, 138, 110, 106, 90, 76, 62, 58, 28
14120 DATA "Green-Sibson"
14130 REMark end of DATA for Green-Sibson
14140 :
14150 REMark Bowyer Figure 3 data
14160 REMark ref: Computer Journal V 24 N2 1981
14170 DATA 8
14180 REMark double , x +50
14190 REMark DATA 73, 22, 29, 49, 30, 75, 19, 87
14200 DATA 196, 94, 108, 148, 110, 200, 88, 224
14210 REMark DATA 70, 52, 64, 51, 33, 20, 62, 52
14220 DATA 140, 104, 128, 102, 66, 40, 124, 104
14230 DATA "Bowyer"
14240 REMark end of DATA for Bowyer
14250 :
14260 REMark Preparata & Shamos data
14270 REMark ref: Computational Geometry 1985
14280 DATA 16
14290 REMark treble add 20 to y
14300 REMark DATA 32, 50, 18, 28, 36, 49, 61, 12
14310 DATA 96, 150, 54, 84, 108, 147, 183, 36
14320 REMark DATA 22, 31, 56, 29, 19, 43, 41, 58
14330 DATA 66, 93, 168, 87, 57, 129, 123, 174
14340 REMark DATA 44, 41, 36, 35, 37, 32, 34, 27
14350 DATA 152, 143, 128, 125, 131, 116, 122, 101
14360 REMark DATA 26, 27, 23, 18, 15, 16, 10, 12
14370 DATA 98, 101, 89, 74, 65, 68, 50, 56
14380 DATA "Preparata & Shamos"
14390 REMark end of DATA for Preparata & Shamos
14400 :
14410 REMark O'Rourke data for code51
14420 REMark ref: Computational Geometry in C, 1998
14430 DATA 10
14440 REMark add 100 to bring into 1st quadrant
14450 REMark add 50 to x, 10 to y
14460 REMark DATA 31, -13, -63, -5, 87, 40, 23, 64, 0, -14
14470 DATA 181, 137, 87, 145, 237, 190, 173, 214, 150, 136
14480 REMark DATA -76, 21, -83, -66, -94, 71, -46, -80, -57, 2
14490 DATA 34, 131, 27, 44, 16, 181, 64, 30, 53, 112
14500 DATA "O'Rourke Fig. 5.29"
14510 REMark end of DATA for O'Rourke
14520 :
14530 REMark Klette data
14540 REMark has known degeneracy with 4 co-circular points
14550 REMark Reinhard Klette lecture notes
14560 DATA 10
14570 REMark multiply by 20 and add 80 to better display
14580 REMark DATA 0, 1, 2, 2, 3, 4, 4, 5, 6, 7
14590 DATA 80, 100, 120, 120, 140, 160, 160, 180, 200, 220
14600 REMark DATA 3, 6, 1, 4, 4, 1, 3, 5, 1, 4
14610 DATA 80, 140, 40, 100, 100, 40, 80, 120, 40, 100
14620 DATA "Klette"
14630 REMark end of DATA for Klette
14640 :
14650 REMark O'Rourke Fig. 5.5
14660 DATA 20
14670 REMark double values , drop y by 30
14680 REMark DATA 75, 80, 48, 63, 86, 97, 90, 107, 48, 102
14690 DATA 150, 160, 96, 126, 172, 194, 180, 214, 96, 204
14700 REMark DATA 85, 113, 77, 97, 103, 47, 101, 120, 118, 70
14710 DATA 170, 226, 154, 194, 206, 94, 202, 240, 236, 140
14720 REMark DATA 105, 96, 91, 91, 89, 89, 88, 88, 77, 76
14730 DATA 180, 162, 152, 152, 148, 148, 146, 146, 124, 122
14740 REMark DATA 71, 70, 65, 65, 65, 53, 44, 29, 26, 24
14750 DATA 112, 110, 100, 100, 100, 76, 58, 28, 22, 18
14760 DATA "O'Rourke Fig5.5"
14770 :
14780 REMark end of listing Aug 20, 2002

```

# A comment on David Denham's Clocking In Part 3

Listing No.3 (QLT Vol.7 iss.1 pp. 47-50)  
Phoebus R. Dokos

There is a difference in the way Easter Sunday is calculated by the Orthodox as opposed to the Easter Sunday calculated by Catholics, Protestants etc.

## Background:

a. Easter in Greece is called Pascha (similar to the French Pques... I think that's the right spelling) which derives from the equivalent Hebrew word known in English as Passover.

Since the Jews celebrate Passover on the day of the full moon after the spring equinox and because Christ was resurrected after that, the first Ecumenical synod that convened in Nicaea of Vithynia in 325 A.D set the following 'Ecumenical Rule':

'Pascha (Easter) will be celebrated on the 1st Sunday after the full moon that occurs on or after the spring equinox'. This way it was made sure that Passover and Easter would never be on the same date.

(So far no difference from what David told us).

b. Because the Eastern Catholic (or commonly know as Orthodox (1)) was using until 1896 (2) the Julian Calendar and because a part of the church kept that calendar in use (Among others, all monasteries in Mt. Athos, the Russian Patriarchate, the Jerusalem Patriarchate etc.) it was decided that the Easter Sunday calculation would not change.

c. The Gregorian calendar sets the spring equinox date on March 21st and therefore Catholics, Protestants etc. celebrate Easter from March 22nd until April 25th). Because of the errors in the Julian calendar, this date is set to be March 28th and therefore if this happens to be a Sunday (and be the full moon) the earliest possible date for Orthodox is April 4th.

## Calculation:

a. The Orthodox Easter is calculated in April Days (much like the Knuth algorithm outlined in David's article) but because it retains the errors of the Julian calendar, it is a lot simpler

b. The algorithm for calculation is provided by a Gauss Formula (more on that below)

c. Two values are needed to calculate the Orthodox Easter: The date of the Easter Full Moon (d-2) and The days from the Easter Full Moon until Easter Sunday (z+5)

d. The complete Gauss formula is:  $April\_Days=(d-2)+(z+5)+3=d+z+3$ , where:

a = The MODULUS of Year/19

That's the Cycle of Meton

b = The MODULUS of Year/4

That's the Leap Year correction

c = The MODULUS of Year/7

These are the days of the Holy Week

d = The MODULUS of  $(19a+16)/30$

z = The MODULUS of  $(2b+4c+6d)/7$

If of course April\_Days turns out to be greater than 30 then we subtract 30 and we are left with Days of May.

Below is the complete listing for calculation of Orthodox Easter Sunday

```
10 REMark Orthodox Easter Sunday
Calculator
20 REMark by Phoebus R. Dokos
30 REMark Uses the GAUSS method
40 INPUT "Please Enter the year for
which you want to know the Orthodox
Easter date: "; year%
50 a%=year% MOD 19: REMark Meton's Cycle
60 b%=year% MOD 4: REMark Leap Year
70 c%=year% MOD 7: REMark Days of the
Holy Week
80 d%=((19*a%)+16) MOD 30: REMark Date
of Orthodox Easter Full Moon
(subtract two from this number)
90 z%=((2*b%)+(4*c%)+(6*d%))MOD 7:
REMark Days from Easter Full Moon
until Easter Sunday
100 April_Days%=(d%+z%+3): REMark Gauss
algorithm calculates the day of
Easter Sunday in days of April.
110 IF April_Days% >30 THEN Easter_Date$
= year% & ", " & "May " & (April_Days%
- 30)
120 IF April_Days% <=30 THEN
Easter_Date$ = year% & ", " & "April
" & April_Days% : REMark Orthodox
Easter can only be after 4/4
130 PRINT Easter_Date$
```

Also on David's remark that Zeller's Congruence sets the base month in March, I would theorise

that this happens because of the Spring Equinox being set in March.

I hope that this is of some interest to someone!

#### Footnotes:

(1) To be absolutely correct -term wise-: "The One, Holy, Orthodox Apostolic and Catholic Church" (Orthodox: "The one that preaches the CORRECT truth" from Orthos: Correct, Doxa: Belief, Rite and Catholic: The one for ALL- from OLA=All, Everything)

as it is its full title - I am sure someone will have some use for this trivial information:-)

(2) This was adopted by the -then- Hellenic Kingdom a little after the Olympic Games due to some funny circumstances with foreing correspondence from the Games... ie the letter arriving at a date in say the UK before it was sent :-) (I've seen some of those in my years working for Vlastos Philatelic Centre and it was rather interesting as the first thought that comes to mind is that Mr. Spock is right... Time Warp IS possible :-)

## Programming with QPTR - Part 4 - The level II pointers

Wolfgang Lenerz

Last time I left you with the promise to explain automatic underlining of text items. So here it is:

### 3. Automatic underlining of a letter in a text item

You will probably have noticed that in many cases a letter in a text loose menu item is underlined (generally, but not always the first letter). This serves to indicate to the user that this letter is the selecton key for this menu item. For an example, you can look at the "Command" menu in the QPAC 2 Files program.

This of course is a very nice possibility and, provided you have QPTR version 0.08 or higher, you can also make use of this in your own programs.

As was mentioned last time, to obtain this automatic underlining, you have to add something to the type of the item. Remember, this works only with text items - and you can only underline one letter per item, of course.

*In principle*, to obtain automatic underlining, you subtract 2 from the item type to underline the first character of the item, 4 to underline the second character in the item text, 6 for the third and so on - in fact, you subtract twice the position of the letter in the item text.

*In practice*, however, this will generate an error if you use an underlined text item and add -256 to it (to obtain a return even when the item is "hit" and not "done"). The combination of a negative item type and a negative addition to it, makes QPTR hiccup and refuse the item type.

Hence, to obtain underlining in a text item where you also want to use the -256, you should use the following item types:

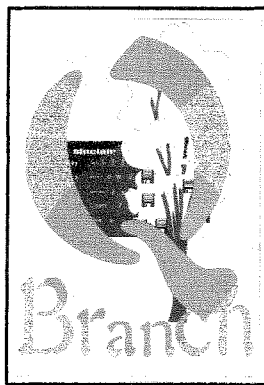
254 = text with first letter underlined  
252 = text with second letter underlined  
250 = 3rd letter

and so on. I think you can see the progression.

If you want to use this possibility, though, you should slightly change the RD\_LOT procedure that comes with QPTR (and the use of which is, of course, highly recommended). I have made these changes, and here you can find the procedure as it stands now:

```
DEFine FuNction RD_LOT (lattr,nitem)
  LOCAL count(3)
  LOCAL item, ltyp, a$, lsk$
  LOCAL ldef%(nitem-1,6), lptr(3,nitem-1)
  LOCAL lstr$(nitem-1,85)
  lsk$=''
  FOR item = 0 TO nitem-1
    READ ldef%(item,0), ldef%(item,1)
    READ ldef%(item,2), ldef%(item,3)
    READ ldef%(item,4), ldef%(item,5)
    READ a$: lsk$=lsk$ & a$
    READ ltyp
    ldef%(item,6)=ltyp:ltyp=(ltyp MOD 256)/2
    IF ltyp>10 or ltyp<0:ltyp=0
    IF ltyp
      READ lptr(ltyp,count(ltyp))
    ELSE
      READ lstr$(count(0))
    END IF
    count(ltyp)=count(ltyp)+1
  END FOR item
  RETURN MK_LIL(lattr, ldef%(TO, 0 TO 1),
  ldef%(TO, 2 TO 3), ldef%(TO,4 TO 5), lsk$,
  ldef%(TO, 6), lstr$, lptr(1), lptr(2),
  lptr(3))
END DEFine RD_LOT
:
```

As you can see, the changes concern the handling of ltyp...



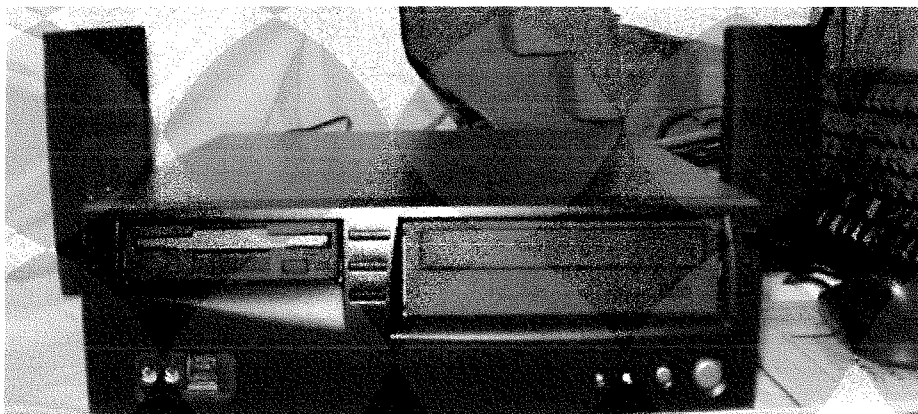
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Ok, now the handling of menu items has no more secrets for you.

### C - The information subwindow definition list

As mentioned in previous instalments of this series, menu items all have a certain action, they do something. This is not true for "information sub-windows" – they are there only to DISPLAY some sort of information, or used just to draw borders within the window. If you look at the "command" window in the QPAC2 Files program, you can see that the window is divided into three parts: the upper part, containing the name of the window, a middle part framed by a green border (it contains some loose menu items) and the lower part with commands that are not included within the border. This border was drawn with an information sub-window, whose only function here is to draw that border.

Contrary to loose menu items, information sub-windows do not have to have common attributes. They can be as disparate as you wish them to be. Moreover, the content of each information sub-window can be completely different, not only from the content of other information sub-windows, but even from another part of the content of that same information sub-window.

Thus, when building the list of the information sub-windows, this list will be substantially different to that for the loose menu items. In fact, we will have several lists: one general master list, containing pointers to the information sub-windows, and then one list per information sub-window.

Here with the level II pointers, we are only concerned with the master list, which contains information for each sub-window, as well as pointers to other information. The information contained in this master list is concerned with the "physical definition of each sub-window (size, origin et al). The pointers to other information point to information about the content of each sub-window.

To build this master list, we use the following function: **MK\_IWL** (**MaKe Information Sub-Window List**)

`infstab = MK_IWL(iwdef%, iwattr%, infolist)`  
where:

→ \* **iwdef%** is an array containing the physical description of the windows. It has a dimension DIM (n,3) where n is the number of

information subwindows-1. For each array element z, the array contents are:

- window x size (z,0)
- window y size (z,1)
- window x origin (z,2)
- window y origin (z,3)

The origins are the top left corner of the window with respect to the top left of the primary (or secondary) window containing the information sub-window.

→ \* **iwattr%** is an array with the attributes of the sub-windows. It is again an array DIM (n,3) where n is the number of information sub-windows -1. For each array element z, the array contents are:

- Shadow "depth" – this is actually ignored for information sub-windows and should be left at 0.
- border size
- border colour
- paper colour

of the information sub-window, in that order.

→ \* **infolist** again is an array, but not an integer array. It is an array of pointers towards the lists containing the content of the information sub-windows. These pointers are obtained with a level III function (**MK\_IOL**), which we shall look at later. There is one such list per information subwindow (or else the pointer is left at 0).

### D - The application subwindow list.

Here again, this is a master list. It is, again, different from what has gone before. Actually, it contains no other information than pointers towards application sub-window definitions. Indeed, for each application sub-window, we must establish one definition. The pointers to these definitions are united into this single master list.

Like information sub-windows, application sub-windows do not necessarily have common characteristics, they can be very different from each other. This is why the master list contains only these pointers to the application sub-window definitions.

To build this list of application subwindows, we shall use the function **MK\_AWL** (**MaKe Application sub-Window List**)

`apptab = MK_AWL(appsubwin(n))`

appsubwin is an array containing the pointers to the application sub-window definitions. For "n" application sub-windows, you will DIM this array (n-1). It will be filled in with pointers supplied by the MK\_APPW function:

```
appsubwin(0)= MK_APPW (level III parameters)
appsubwin(1)= MK_APPW (level III parameters)
etc...
```

If your window does not have any application sub-windows, apptab is just 0.

This finishes level II – so let's continue right away into level III.

## The Level III Pointers

The Level III commands and functions are used to fill in the contents of the sub-windows (information sub-windows and application sub-windows). As was already mentioned, the content of the primary window is made up of the loose menu and the two types of sub-windows, its contents are thus defined by them. The loose menu is already entirely defined in levels I & II so there now only remains to fill in the content of the sub-windows.

### A - The information sub-windows

The "physical" definition (i.e. size and origin) of these windows was already given in Level II. Here in level III, we only define what is *in* the sub-window. The content of such a subwindow is made up of "**objects**". An object may be anything: a text, a sprite, a "pattern" or even a "blob". For example, if the sub-window is to contain the words "Joe was 'ere", the object is the string "Joe was 'ere", and it is an object of type text. We have already met objects: the content of a loose menu item can be a text, a sprite, a "blob" or a "pattern" – this is, in fact the "object" of this loose item. The same is true for information sub-windows but an information sub-window can contain several objects whereas a loose menu item can only contain one object.

To use the above example, if the information sub-window is supposed to contain the string "Joe was 'ere", this text could be the object of the sub-window. But I could also say that the word "Joe" is the first object of the information sub-window, the word "was" is object number 2, and "ere" object number 3. The window thus would have three text objects.

Agreed, in the above example it would not make much sense to have three objects where one would do the trick (and even so: see below). However, you could have a text in front of, or next to a small sprite. Then you would have to define two objects, one a text, the other a sprite.

By now, you will have guessed that you will need to build up a list of information sub-window objects. This is achieved with the function **MK\_IOL** (**Ma**Ke **Info**rmation sub-window **O**bjects **L**ist):

```
listobj1 = MK_IOL (isize%, iorg%, imod,
itype%, istr$, ispr, iblb, ipat)
```

Here, listobj1, the result of the function, is a pointer to the list of the objects.

The parameters to this function are not very complicated (hereafter, "n" is the total number of objects in the information sub-window to put on the list):

- \* **isize%** is an integer array of DIM isize% (n-1,1). For each object x, isize% (x-1,0) is the x-size and isize% (x-1,1) is the y-size of this object (remember, numbering starts at 0). As usual, the sizes are given in pixels.
- \* **iorg%** is an integer array of the same DIMensions and contains the x and y origins of the object within the information sub-window. (0,0) is the upper left hand of the information sub-window.
- \* **itype%** is again an integer array, but of DIMension itype%(n-1). It contains information on the type of object (same as for loose menu items). Here again, you can provide for automatic underlining of any letter in a text object, by varying the type parameter just like for loose items: (254=1st character is underlined, 252 = 2nd character is underlined and so on).
- \* **istr\$, ispr, iblb** and **ipat** are string arrays (**istr\$**) or floating point number arrays (the others) and they contain, just like for loose items, the objects themselves, i.e. the strings (**istr\$**), sprites (**ispr**) blobs (**iblb**) or patterns (**ipat**). Each object can be of any type.
- \* **imod** is a floating point array and contains possible additional information on each object:

\* If the object is a sprite, there is no additional information.

\* If it is a blob, you must insert here the address of a "pattern", and if it is a pattern, give the address of a blob. Generally, instead of referring to blobs and patterns, you might consider using sprites.

\* If the object is a text, you must give the ink colour of the text, and the size of the text (like in the CSIZE command). This data is combined as follows:

$\text{Ink} * 65536 + \text{Csize\_x} * 256 + \text{Csize\_y}$

Thus, if the object is to be a string which is to be printed in red and big letters (i.e ink=2, csize=3,1), this becomes:

$2 * 65536 + 3 * 256 + 1 = 131841$ .

Thus for this object, imod (x-1) would contain 131841.

It follows that if I want a string ("Joe was 'ere") where Joe would be printed in big red letters, the rest in normal colours, I would need two objects, one for "Joe", the other for the rest.

Strangely, in the parameter list, the imod parameter precedes the type% parameter, even though it is the type% parameter that determines

what the additional information is – but that's the way it is.

You should build up a list for each information sub-window (unless the sub-window is empty – then the pointer is 0).

You will thus write:

```
listobj1= MK_IOL(...)  
listobj2= MK_IOL(...)
```

and so on, one for each sub-window. Once the lists for the sub-window have been made, then you must regroup the pointers to the list in another array, as follows:

```
DIM infolist(n-1)  
  
infolist(0)= listobj1  
infolist(1)= listobj2  
...  
infolist(n-1)=listobjn
```

The infolist array is then one of the parameters to the MK\_IWL function, which, as we have seen, is a LEVEL II function explained earlier.

OK, that's it for today.

More in the next instalment, where we'll look at some more level III parameters.

---

## TK2 on MAC QL Emulator

by Al Boehm

### About how to install TK2 on the MAC Q-emulator:

The Q-emulator web page has changed. It is now:

<http://users.infoconex.com/daniele/q-emulator.html>

However, that won't help with the MAC version since that page is still being updated.

It's been some time since I ran Q-emulator for MAC and I am still looking for the paper manual which is probably within 8 feet of where I am sitting. As soon as I find it, I will give you more definitive instructions. If I don't find it, I will email Daniele for info.

As I recall, there are two steps to installing the TK2\_ext.

1. Get a copy of TK2 (Tony Tebby has OKed free use of TK2 on emulators). If you have a hard time finding a copy of TK2, I will send you it via email. It's not very large.

2. Use the the CONFIGURE menu to install the copy and then save the configuration. I remember this was pretty straightforward but I do need that manual to be exact.

**Editor's comment: if YOU are using the latest MAC QL Emulator, why not write about it? Other readers may be very interested in your experiences? I still get asked by Mac users and can't refer to anything recent. Also, if you run QPC under RealPC or Virtual PC on the Mac, please tell us and others about it. Best, if you use both and let us know the advantages and disadvantages of each system.**

# STOP THE PRESSES: Aurora GD2 is (Finally) here!

Phoebus Dokos

A first look at SMSQ/E 2y99 for the Super Gold Card / Aurora with Colour Drivers

When I received my SMSQ/E sources CD, I had only one thought in my mind: How to implement the GD2 for the Aurora. A lot of setbacks, made me start (and continue) very-very slowly. I was up to the point where I could print something and then the machine would crash (Nice progress eh?). Enter Marcel Kilgus (yep him again!). On January 20th, he sent me an email inquiring about my progress with the colour drivers for the Aurora, saying that on a whim (!) he had already written most of the code! I (of course) stopped all of my efforts since when the "Big Guns" go into battle there's no room for slingshots :-)

When Marcel asked me to help me test it, I said yes of course (what am I crazy?!) and in minutes he sent me the first version that had the new WMAN in, but not the colour drivers yet. Before I even put my Aurora back together to test it, he sent me the second version this time with colour drivers! (How's that for speed?).

## First test... (Oh bummer!)

Fire up the Aurora (which is currently jerry-rigged under my desk), put the disk in... ooopssss crash! Try with the Mode 4 only version... no cigar either! Checked it up with QPC and MenuConfig to see what's going on, the Config blocks appeared in order (although reporting SMSQ/E v.2z99), so a quick email to Marcel to report my findings.

## Second test... (We're getting somewhere)

Before long, Marcel sent me another version. Apparently some changes for QPC not yet incorporated in the source tree, had crept in. Okay, let's try this again! Start the Aurora (Thank God for RomDisq!), TK2\_EXT then  
LRESPR flp1\_aurora8\_gold  
ooooopssss IT's BOOTING!



Colours and display are all out of place though and for each pixel in Mode 256, three appear. Any attempt to use DISP\_SIZE or DISP\_COLOUR hangs the machine. Hurry back to Marcel... Immediately (and I mean immediately) he responds that the code in SMSQ/E for DISP\_SIZE and DISP\_COLOUR were apparently never tested fully (Some of you having Q40s may have noticed that DISP\_TYPE 1024

crashed the machine instead of switching to 1024x512). Then in a flash, although VERY late, he sends me a newer version (I wonder if he ever sleeps?)

## Third and fourth tests...

No luck here either the problems persist although we're clearly going somewhere! Quick email to Marcel once more... and next morning here comes gold\_try5 (nicely named!)

## Fifth test (Wow!)

As it turned out the problems were on the build system that Marcel uses and there was never a problem with his code. LRESPR SMSQ/E and oh yes!

No problems here! Type DISP\_TYPE, returns 5 (Definitely not a regular QL Mode). Try COLOUR\_PAL, then a quick program to set ink and paper and print... COLOUR at last albeit with a couple of stipple quirks that eventually went away (after some fiddling with DISP\_COLOUR and COLOUR\_xxx commands). Next step is to move the complete startup disk from QPC 3.04 Xmas Edition (those of

you that have it you know already of the new QPAC2 and 3D look WMAN). Load it up (with the exception of an AUTO REPEAT poke for the keyboard that hangs my superHermes equipped Aurora) and it starts up great!

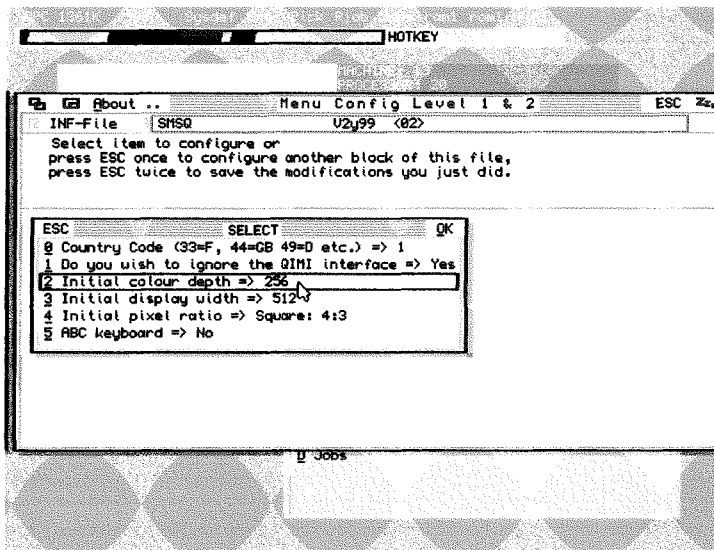
BGCOLOUR\_24 works fine and so does WMAN with all the new icons (very beautiful too! That's a big plug for me if anyone didn't notice!). QPAC2 doesn't exactly look nice due to the lack of system palette incorporation, but the first test nevertheless is successful! Time to report back to Marcel. No time to waste, new edition!

### Sixth test (Almost there!)

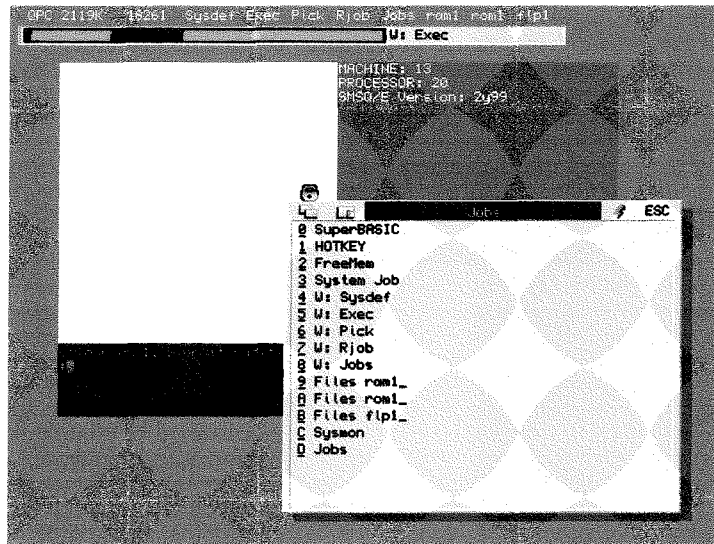
Marcel fixed the system palette bit, so I copied the newer version to my RomDisq and restarted. First note: A nasty bug that really tormented me for years (SH not responding correctly after a soft-reset) is not there any more! Hmm looks like Marcel's been busy.

Run QPAC2 and colourways again. Hallelujah! 3D QPAC2 and in excellent Technicolor(TM)! DISP\_COLOUR now works great and so DISP\_SIZE. Mode changes (Back to Mode 4 and 8) are also possible with DISP\_COLOUR 0, X\_RES, Y\_RES and also the vertical resolution bug has been fixed (Almost! More on this on the next test) Start to load programs to see how it is holding up. I start with my all time favourite: TURBO. Loads, compiles without a hitch (didn't try the DISP\_COLOUR 2 though

yet to be honest with you). Then QMENU, QD, and MENU Config. All work great with the exception of MENUConfig having "hiccups" ie. the Wait-Busy pointer coming up very often.



EXEP Jobs, adjusted the priority to 127, no problems after that. QTrans works as well, Qascade and Q-Eyes have no problems, Unzip/Zip none as well. Time to save a screen and send it to Marcel. He



discovers a tiny bug (512x480 although reporting 480 by SCR\_YLIM was actually 384)... He also responds to my ecstatic email that there were some problems with the colour maps (which I never saw to be honest) but trust the master any-

way! He promptly sends another version this time with the WMAN and HOTKEY System II configuration items included in the config block.

And here comes the final test (Yep he got it!)

Loading up (appears faster or is it just me?) and everything works fine as before but now no problems with MENU-Config and DISP\_TYPE is reporting 16 instead of 5. Also the SCR\_YLIM reports the correct size now! Report back to Marcel with lots of Congratulations!

### First impressions of the System

The colour drivers are VERY fast and VERY stable. The colours are vivid and the picture extremely stable. What might seem weird is that the colour

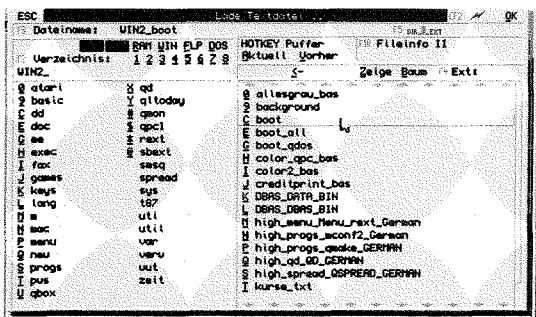
drivers feel actually faster than the Mode 4 and Mode 8 ones. Nasta could probably answer this but the bottom line is that my Aurora is now as I expected it to be when I

first bought it a long time ago. The new WMAN is a dream to use. The 3D windows (on which I had a very very small hand designing) are gorgeous and the PE is pure eye-candy! The icons I designed for high-colour are rendered excellent on the 256 colour display which

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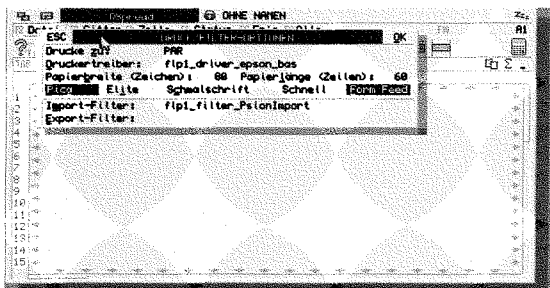
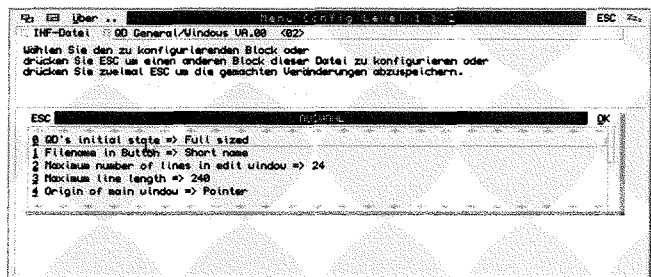
## High-Colour and 3D are coming to JMS - have a look!



Although mostly in German, I'm sure you'll recognise most of the menus, extensions and programs windows' shown in this ad. Well, not quite ad - more some kind of an announcement.

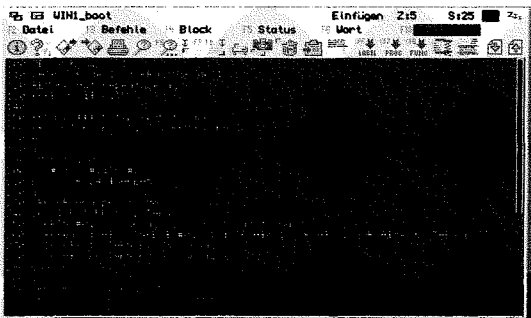
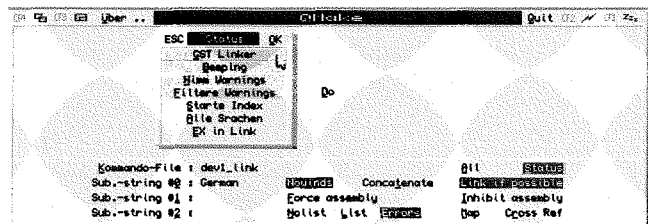
As you can see, most of the JMS products are in the process of being converted to high-colour and

3D-WMAN look. Some questions are still not fully answered (what do we do about the old colourways, for example), and the conversion is not really finished, but you'll get an idea of the way things may look.



Phoebus Dokus has created very nice high-colour sprites which we hope to be able to implement as well - this will improve the 3D high-colour look even more! So you see things are moving - stay tuned and watch this ad in two months time .... I'm sure you will need to prepare your update disks by then.

And talking about updates. JMS will be present at the Byfleet show and the USA show - so no need to send the disks, come along and get your personal update!



Please do not inquire about updates of all our products (QD, QSpread, Menu, QMAKE etc. etc.) - and don't forget QPC and SMSQ/E (because only with the new WMAN you will be able to get the new look) until you see the updates being advertised in QL Today or Quanta or in a newsletter. Thanks, and see you at the next QL Show!

proves not only that Marcel did a more-than-excellent job but that also Jérôme Grimbart that helped with the Mode definitions and colour conversions, really knows his stuff!

### The bottom line?

There's only one thing to say here. The Aurora looks exactly the way it should! When I first bought mine, I expected the colour drivers which never came. After the Open Source SMSQ/E became a reality, I expected to have the same thing done is approx 3 to 4 months

(given my limited programming abilities, but Marcel did it in 3 days (not even if you factor in that the problem was not in his code!). So eat our dust Microsoft and KUDOS to Marcel. I wonder what's next with him? Background I/O? Real separators? Long Filenames? Hmmm maybe all of the above as long as he's in a roll. Thanks Marcel and GREAT JOB!

P.S. My Aurora has been running opening and closing windows with colours using my experimental GUI routines I

wrote a while back (Norman knows best) for 18 hours straight...

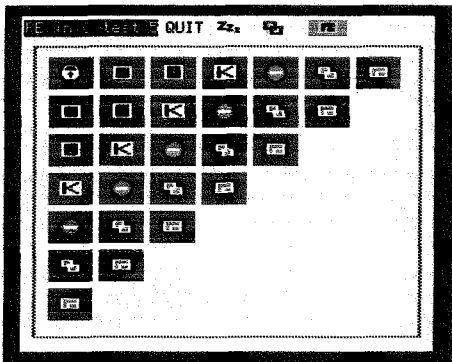
P.S. (2) A positive side-effect of this development: Q-Word is now being ported to the Aurora as well (a lot faster than we expected). But more on this on another article in this issue.

**Please note that in the screen shot on the previous page the QPC appearing in the top left corner is from Marcel's patched Free\_Mem button and shows QPC wherever you run it.**

## A short Visit of XMenu - Part 5

Jérôme Grimbart

### A menu sub-window instead



A menu sub-window is just a grid container to hold a collection of menu items (which are like loose items, excepted they are not loose!).

The column and row sizes can vary along the grid (if you use a list which describes the size of each columns and another list for the size of each row), but it will always remains a simple grid and there is no way to merge some cells together, so as for example having a large items over many small columns. That's not possible with the menu application, so do not even try.

Of course, if all rows or columns have the same size, there is no need to bother with a list; we will see that in the following code.

```
--- cpe4_c
+++ cpe5_c
@@ -11,22 +11,27 @@
```

```
char _conname[] = "con_2x1a0x0"; /* mask startup problems, for old one */
char *_endmsg = NULL; /* and stop when I say */

-char _PROG_NAME[] = "PE in C tutorial 4";
+long wm_vectr=0;
+
+char _PROG_NAME[] = "PE in C tutorial 5";
static QD_TEXTI(quit,"QUIT");
-static QD_TEXTI(title,"PE in C test 4");
+static QD_TEXTI(title,"PE in C test 5");
```

Just changing the name again. Not really powerfull.

```
-static long ACTION_QUIT(struct WM_wwork *wwk,struct WM_litm *li);
-struct WM_action action_quit = { JSR, wm_actli, ACTION_QUIT};
-static long ACTION_MOVE(struct WM_wwork *wwk,struct WM_litm *li);
-struct WM_action action_move = { JSR, wm_actli, ACTION_MOVE};
-static long ACTION_ANY(struct WM_wwork *wwk,struct WM_litm *li);
```



```

-struct WM_action action_size = { JSR, wm_actli, ACTION_ANY};
-static long ACTION_SLEEP(struct WM_wwork *wwk,struct WM_litm *li);
-struct WM_action action_sleep = { JSR, wm_actli, ACTION_SLEEP};

```

The declaration are being removed, because the definition are coming right at the beginning of the file, before the definition of the action callback.

```

+
+static long MY_MENU_DRAW(struct WM_wwork *wwk, struct WM_menw *mw)
+{
+ return wm_mdraw(wwk,(struct WM_swdef *)mw,0);
+}
+
+static long MY_MACT(struct WM_wwork *wwk, struct WM_menw *mw, char *mst, short
col, short row)
+{
+
+ return 0;
+}

static long ACTION_QUIT(struct WM_wwork *wwk, struct WM_litm *li)
{
    exit(0);
}
@@ -48,10 +53,18 @@
static long ACTION_ANY(struct WM_wwork *wwk, struct WM_litm *li)
{
    return li->skey+14;
}

+
+struct WM_action action_quit = { JSR, wm_actli, ACTION_QUIT};
+struct WM_action action_move = { JSR, wm_actli, ACTION_MOVE};
+struct WM_action action_size = { JSR, wm_actli, ACTION_ANY};
+struct WM_action action_sleep = { JSR, wm_actli, ACTION_SLEEP};
+struct WM_action menu_draw = { JSR, wm_drwaw, MY_MENU_DRAW};
+struct WM_action my_mact = { JSR, wm_actme, MY_MACT};
+
+struct WM_wstat * init_status(struct WM_wwork *wwp)
{
    struct WM_wstat *result;
    /* Default struct has 40 loose item, that's enough */
    result=(struct WM_wstat *)malloc(sizeof(struct WM_wstat));

```

We nevertheless still need to define the action callbacks, so even if we do it later, we still do it.

```

@@ -74,21 +87,26 @@
    result->cihyo = 0;
    result->litem[0] = 0;
    result->litem[1] = 0;
    result->litem[2] = WSI_UNAV;
    result->litem[3] = 0;
+ result->litem[4] = 0;
    return result;
}

```

```

struct WM_wwork * init_window()
{
+ int i;
    struct WM_wwork * result;

```

```

struct WM_litm *loose_list;
struct WM_infw *infw_list;
struct WM_info *info_list;
- struct WM_appw *aw;
+ struct WM_menw *aw;
    struct WM_appl *al;
+ struct WM_mobj *menuobj;
+ struct WM_rowl *row;
+ char *mstt;

```

We will need some additional variables, and also to change the type of aw.

```

@@ -126,66 +144,134 @@
    loose_list[0].pact=&action_quit;
    loose_list[0].item=0;

```

```

    loose_list[1].xsize=24;
    loose_list[1].ysize=10;
-   loose_list[1].xorg=32;
-   loose_list[1].yorg=16;
+   loose_list[1].xorg=32+15*6+4*6;
+   loose_list[1].yorg=3;
    loose_list[1].xjst=0;
    loose_list[1].yjst=0;
    loose_list[1].type=TYP_SPRITE;
    loose_list[1].skey=K_MOVE;
    loose_list[1].pobj=&wm_sprite_move;
    loose_list[1].pact=&action_move;
    loose_list[1].item=1;

    loose_list[2].xsize=24;
    loose_list[2].ysize=10;
-   loose_list[2].xorg=60;
-   loose_list[2].yorg=16;
+   loose_list[2].xorg=60+16*6+4*6;
+   loose_list[2].yorg=3;
    loose_list[2].xjst=0;
    loose_list[2].yjst=0;
    loose_list[2].type=TYP_SPRITE;
    loose_list[2].skey=K_SIZE;
    loose_list[2].pobj=&wm_sprite_size;
    loose_list[2].pact=&action_size;
    loose_list[2].item=2;

    loose_list[3].xsize=24;
    loose_list[3].ysize=10;
-   loose_list[3].xorg=4;
-   loose_list[3].yorg=16;
+   loose_list[3].xorg=4+15*6+4*6;
+   loose_list[3].yorg=3;
    loose_list[3].xjst=0;
    loose_list[3].yjst=0;
    loose_list[3].type=TYP_SPRITE;
    loose_list[3].skey=K_SLEEP;
    loose_list[3].pobj=&wm_sprite_sleep;
    loose_list[3].pact=&action_sleep;
    loose_list[3].item=3;

    loose_list[4].xsize=-1;
    /* end of list */

```

We are just changing the position of the loose items. Nothing really related to using a menu sub-window.

```

+   menuobj = (struct WM_mobj
*)malloc(8*sizeof(struct WM_mobj));
+   for(i=0;i<7;i++)
+   {
+       menuobj[i].xjst = 0;
+       menuobj[i].yjst = 0;
+       menuobj[i].type = TYP_SPRITE;
+       menuobj[i].skey = 'A'+i;
+       menuobj[i].pobj = (void *) (i+1);
/* tricky, only for PE after 1.13 */
+       menuobj[i].item = i;

```

```

+       menuobj[i].pact = &my_mact;
+   }

```

Here we allocate the list of menu items, in one chunk. You can allocate it in many chunks if you want, but items on the same row must be contiguous.

We are also being lazy for this example, because the items will be the PE sprites. Notice that the type of item can vary along the list (there is no problem mixing Text and Sprite item!).

```

+   row = (struct WM_row1 *) malloc
(8*sizeof(struct WM_row1));
+   for(i=0;i<7;i++)
+   {
+       row[i].rows = &menuobj[i];
+       row[i].rowe = &menuobj[7];
+   }
+   row[7].rows = NULL;
+   row[7].rowe = NULL;

```

For each row, we must indicate the address of the first item, and the address of the item after the last item of the row. So, even if there is no such thing as menuobj[7], because the last item is menuobj[6], we have to give the pointer past the last wanted item.

```

+   mstt = malloc(8);
+   for(i=0;i<8;i++)
+   {
+       mstt[i]=WSI_AVBL;
+   }

```

We need a status area, so let's allocate it.

```

-   aw = (struct WM_appw *)
malloc(sizeof(struct WM_appw));
-   aw->xsize=20*5;
+   aw = (struct WM_menw *)
malloc(sizeof(struct WM_menw));
+   aw->xsize=12*20;

```

Remember to change the type of aw. We are also changing the width of the window

```

aw->ysize=180;
aw->xorg=10;
-   aw->yorg=40;
-   aw->flag=1;
-   aw->borw=4;
+   aw->yorg=20;
+   aw->flag=-32768;
+   aw->borw=1;
aw->borc=255;

```

# QUANTA



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Some minor changes in design, not directly related to the menu sub-window.

```
- aw->papr=4;
- aw->pspr=NULL;
- aw->draw=NULL;
- aw->hit=NULL;
+ aw->papr=7;
+ aw->pspr=&wm_sprite_hand;
+ aw->draw=&menu_draw;
+ aw->hit=wm__mhit;
```

Now, this is somehow important. We are setting the sprite for the menu window (a nice hand), and setting the routine for drawing (that's one routine we provide) and managing the mouse hit (this one is provided by the C library).

```
aw->ctrl=NULL;
aw->nxsc=0;
aw->nysc=0;
aw->skey=K_TAB;
- aw->pstat=NULL;
+ aw->ncol = 7;
+ aw->nrow = 7;
+ aw->rowl = row;
+ aw->mstt = mstt;
+ aw->xs.c._size = -28;
+ aw->xs.c._spce = -32;
+ aw->ys.c._size = -20;
+ aw->ys.c._spce = -24;
+ aw->xind = 0;
+ aw->yind = 0;
+ aw->curw = 2;
+ aw->curc = 5;
+ aw->uback = 0;
+ aw->uink = 7;
+ aw->aback = 1;
+ aw->aink = 6;
+ aw->sback = 2;
+ aw->sink= 5;
+ aw->xoff = 4;
+ aw->yoff = 4;
+ aw->ypwcb=NULL;
+ aw->xpwcb=NULL;
+ aw->xinsz=0;
+ aw->xinsp=0;
+ aw->xiciw=0;
+ aw->xicic=0;
+ aw->xiback=0;
+ aw->xiink=0;
+ aw->xiblob=NULL;
+ aw->xipatt=NULL;
+ aw->xpsac=0;
+ aw->xpsbc=0;
+ aw->xpscc=0;
+ aw->ypwcb=NULL;
+ aw->yinsz=0;
+ aw->yinsp=0;
```

```
+ aw->yiciw=0;
+ aw->yicic=0;
+ aw->yiback=0;
+ aw->yiink=0;
+ aw->yiblob=NULL;
+ aw->yipatt=NULL;
+ aw->ypsac=0;
+ aw->ypsbc=0;
+ aw->ypsc=0;
```

And the menu structure is to be filled, mainly of nothing. Just notice that we have to provide the description of each row, the status area of the items and the spacing.

Using negative numbers indicate to the PE that instead of providing list of spacing, we want a single value.

```
al = (struct WM_appl *)
malloc(2*sizeof(struct WM_appw *));
- al[0].pappw= aw;
+ al[0].pappw= (struct WM_appw *)aw;
al[1].pappw=NULL;
```

We need to cast the pointer to the menu structure as a pointer to simple application structure to avoid a warning. But pointers are just pointers anyway.

```
@@ -195,13 +281,13 @@
result->spar1=0;
result->spar2=0;
result->spar3=0;
result->pullid=0;

- result->splst=NULL;
- result->xsize=20*6;
- result->ysize=30+200;
+ result->splst=al;
+ result->xsize=20*13;
+ result->ysize=20+190;
result->xorg=20; /* initial position
of mouse */
result->yorg=8;

result->flag=1;
result->borw=1;
```

Yet another resize of the primary window and the most important thing to get the menu working: Setting the sprite list to the application list.

Next time: splitting!

# OBITUARY

It is with sincere regret that Quanta have to inform the membership of the death of Colin Baskett.

Colin, a real gentleman, was the Quanta Editor until April this year and will be sorely missed by everybody who knew him.

The officers and committee members of Quanta take this opportunity, on behalf of the membership, to pass on our condolences to Ailsa Baskett, and family.

## BYTES OF WOOD SAW POINTS OFFCUTS AND SNIPPETS

It is traditional, at this time of year, to look back over the last twelve months and forward to the next. The process usually involves a fair amount of smug 'told you so'ness for the first part of the procedure and this is often followed by a sequence of fatuous predictions. Never one to buck the traditions (ha!) here goes.....

### The Year in Hindsight

This has been arguably the most tempestuous year that QL users have seen for a long time. Most of the heat was turned up on the internet user group list and, although it may have caused a few of our more peaceable users to call 'enough' it has proved both cathartic and, to a surprising degree, uniting.

As a community of users of, what many outsiders regard a quaint, outdated 8 bit computer, we have been characteristically inward looking. There is a tendency among many to regard some aspects of computing as 'the devils work' and this has led to the rejection of some innovations out of hand.

The other side of the coin is the willingness of some of our

programmers and designers to look to other successful computer systems and borrow ideas. Some of this should see the light this year with Marcel's new Window Manager (see the honourable Mention) and Jim Hunkins' QDT.

Both sides of the fence were represented in the internet argument although the more computationally luddite of the users may have been left out by the lack of an Internet connection.

### Source Majeure

The big event of the year, and the one which probably caused more argument than any other, was the release of the source code for SMSQ/E. This is where the smug 'told you so'ness has to take a back seat while the waitress brings over a small, but piquant, helping of humble pie.

I must confess, dear reader, that I was one of those people who thought that there would be little to show for this endeavour but it seems that I am slowly but surely being proved wrong. This should not be a joyful process but, since it means improvements of many

kinds for the system, I am happy to be so wrong.

A certain amount of time is needed to digest and understand the source code but there are some people out there doing just that and then getting on with the job of improving and adding to the way that SMSQ/E works. There is a lot of evidence that people are beavering away in the background on different aspects of the system and I look forward to seeing the results. So, as they digest the source I will settle down to the pie. So be it.

### Fallen on Hardware Times.....

Last year's US show saw Nasta announcing his roadmap for the future development of QL Hardware. Unfortunately none of this has seen the light of day but that is not due to a lack of drive or commitment on Nasta's part. I suspect that his work situation and the status of his tenure in the US is more likely to be the culprit here. Nevertheless there is a need for more QL hardware and I will return to this subject a little later.

Other hardware devices also received a bit of interest towards the end of the year. A severe shortage of membranes prompted a couple of people to get involved in either key-

board replacements or getting a new manufacturer of membranes. Dave Park did design a replacement for the membrane but this has, so far, not been demonstrated.

Rich Mellor of RWP Software got involved in trying to get some new membranes made and that project is still under consideration. The torch was taken up by several other contributors but I am afraid that I have lost their names in a frenzy of hard disk clear out. Their efforts are not un-noticed and I apologise for not being able to get their names into print.

The problem, of course, is that it is not financially viable for anyone to make the things anymore. In order to make a multi-layered membrane that can be used in a computer keyboard the manufacturer has to make a series of templates, one for each layer. Once this has been achieved then the actual manufacture can be done but even then you would need a reasonable run to make it worthwhile.

As we all know, there are two flavours of superHermes which can be used to enable a PC keyboard to be attached to a QL but many users still want the look (if not the feel and bounce) of the original machine. Most of the QLs still in service are watching the sands slowly slip away until they reach the point where keys will begin to fail. You could take the 'John Roberts' approach and assign ALTKEYS to failed letters but I suspect that few of us have his mental dexterity in recalling exactly which keys made which letters. A solution has to be found if the black boxes are to continue. I know that, at the various QL workshops, they

are few and far between but they mean a lot to the users and most of us still have one or two no matter what hardware we use on a regular basis.

### And Waiting for a Software Landing

I have already mentioned the code for SMSQ/E and a bit further down the line I will be talking about the new Window Manager we will soon be able to look through but there are a few more software items which have either broken through or are bubbling away under the surface.

The most active person in this regard is always Geoff Wicks whose output is fairly consistent. This year saw the launch of QL Rhymes and Autograph - both intriguing and useful items. Geoff has managed to find areas previously unexplored by other QL software and has carved himself a niche in the market. He also manages to do this at a price that can, in no way, represent the amount of effort he takes to produce the code. I hope that he will continue to surprise and delight us in the coming year.

Jim Hunkin's towering project, QDT, has continued in spite of Jim being burdened with a heavy workload from his day job. I have been using the initial alpha test versions of this and, while it is fairly obvious that there is a long way to go with the project the overall impression is that this will be an exceedingly useful piece of software that will run a whole host of applications.

This is another one of those areas where the more purist of you will complain that it goes against the spirit of the QL but I hope that there will be more than a few voices raised in its

support. My original QL display was 'button heaven' because it had a button for every application that I used and - that was a lot! These days the display is mostly a single Qascade button, Sysmon, a clipboard icon and the time button included with Qascade but I can see that Jim's new system could be a very useful addition/ replacement for that.

It could be a major part of the revamp of the look of SMSQ/E systems.

### And QPC Si Si Too!

Although he gets some laurels further down the column, Marcel's steady work to improve the function and power of QPC 2 does deserve a mention here too. This is a program which has made steady progress from its early inception as a DOS based emulator. Marcel continually comes up with new improvements and refinements of concept and must be one of the hardest working programmers we have. From what may seem a small change to give proper shadows on menus and program borders to flashes of inspiration like linking the 'scrap' function from MENU\_REXT to the windows clipboard, he beavers away at making this program an essential asset to any QL enthusiast who has a PC.

I even run it surreptitiously at work so I can pop up a window with my VAT calculator in it because I have not found a Windoze calculator that will do the same job so quickly. I have reduced the QPC2 window to its smallest size and made the calculator fill it so it looks just like another Windoze program (a trick shown to me by Wolfgang Uhlig at an Eindhoven meeting).

## Between a Stack and a Hardware Place

When I took over the distribution of the Miracle Hardware I agreed with Stuart Honeyball that I would do what I could to get broken cards repaired for current users. I could not have done any of this without the help and considerable expertise of Keith Mitchell to whom I pass the broken cards. Keith has been blowing ROMs and doing modifications and repairs to boards for some years. There have been a few unsolvable problems, mostly with QXL cards but I think we have managed to solve most people's problems. One area where the end user does need to be gently chided is in the field of Qubide updates. We do expect the end user to return the old ROM and GAL chips to be reprogrammed but some of you do not do this. This actually makes it uneconomical for us to do the upgrades so, if you have any of these old chips at home please send them to either Keith or myself.

Over recent months I have had a few boards which have not been able to be repaired. There will always be a few of these and, as time goes on, the number will increase due to sheer wear and tear on the components. When he gave up making QL hardware Stuart gave us his stock of partly finished or non working boards and we have been able to cannibalise these to keep the repairs flowing but the stock is dwindling fast.

As you all know there are a couple of chips which are no longer available so manufacturing more Super Gold Cards would be impossible. There is a great need for the next generation of QL hardware to be

available soon. You may see the Q60 to be the natural heir to the QL native hardware throne but the obvious drawbacks for some users are the fact that all of the old QL hardware has to be abandoned and a whole setup purchased in one go. As I said above many people still like the old black box and would rather just plug something in the end to give it a bit more power. This is not meant to deride the Qxx project in any way. A lot of work went into the design of the original Q40 and there has been a sustained development path. The problem, as I see it, is that it is not something that all users can afford - especially when a reasonable spec PC can cost less even with QPC2 and Linux.

The time has come to put a replacement for the Super Gold Card to the top of the wish list because it is vital if some of our longest standing users are to be able to move forward.

## Stack Into The Future

So what do I want or expect from the future? Well, given the evidence of the last few months, I think we will have a continuing development of the operating system. There will probably be a few new bits added and a few tweaks and bug fixes. This should increase as those who have been studying the system get more confident that they understand it enough to contribute. I have an honourable mention waiting for you, boys.

We should also see programmers beginning to adopt the new colour schemes and letting other colours into their programming. Now that the Window Manager changes (see below) have been implemented

this should get easier although it will depend on which system the software author uses to generate his program's menus. In a recent contribution to the user group's email list Tony Firshman said that he hoped to see an Open Source Minerva. I am sorry, but I feel this is an evolutionary dead end now. We are beginning to standardise on a single dominant O/S for the first time in many years and Minerva fell behind SMSQ/E in almost all respects some years ago. I do not deny that it has some outstanding features and some novel ideas but these would be far better off incorporated into the SMSQ/E source code than wasted on a side line O/S. If the source code for Minerva gets released into the public domain it should be absorbed into SMSQ/E to make a single strong platform. I have been a fan of QPC from its very beginning when it enabled me to move on to a laptop without an ISA slot for the QXL. The many refinements and improvements that have been added to it have only made me more and more convinced that this is the most important program for QL enthusiasts. Go to any show these days and a large proportion of the users will have QPC2 on a laptop. There will be Q40/60s and Aurora systems too but probably the only Black Box QL you will see there is on the TF Services stand. The User Group list saw another argument this year about the worth of true 'QL platforms' and denigrating QPC 2 as a 'mere emulator'.

I would like to see an end to the arguments about whether this, or any other QL emulation, is a QL platform in its own right and a more general acceptance that anything that will run

QL programs on a different system is an addition to the treasure chest. the cover CD in this issue will give all a chance to see and try several 'emulators'. All of these are the result of the long hours of coding put in by their authors and all are useful in different ways.

In my opinion if you have a PC in your house for whatever reason it should have QPC2 on it because it is only half as useful without it.

This brings me on to the 'what I want to see' section. First up has to be changes to EasyPtr. On the whole the suite is still functioning OK but the sprite and Menu generation programs are in dire need of an update to accept the new colours. Jochen is already saying that he intends to re-vamp the menu extensions and QD to take advantage of the new colours and they would be very welcome improvements too.

On the hardware front I have already mentioned the need for a new Gold/Super Gold Card. I would also like to see the arrival of Nasta's new Qubide replacement card - especially for the way that he proposes to handle the compact flash format and the possibility of an ethernet port - it just might get me using some native hardware again.

I would also like to see this magazine getting stronger in the coming year with more contributions from the readers and more readers in general. So go out and recruit some more subscribers - you will get a better magazine for your efforts!

### Voted Out

My mention of the big 'vote for your favourite system' question in the last issue prompted a few more replies but, since

they did not even get into double figures I am forced to the conclusion that this is a duck with no quack. I was genuinely interested to see what percentage of our users used/preferred which machines/emulators but it seems that most of you were not too interested to tell me.

Thank you for your kind words Davide Santachiara - it is always nice to get a bit of feedback on the column and praise is an added bonus. Thank you also for the nice postcard, whoever it was who sent it forgot to add a name. The small number of replies does not, unfortunately, allow me to draw any great conclusions for the vote but thanks you all those who actually did reply. The email address is still open:

**vote@qbranch.demon.co.uk**  
as is the QBranch letterbox - should you feel so stirred.

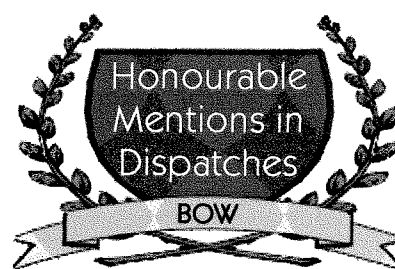
### Wring Out The Old Data

Those of you who like to spot mentions of the QL in more mainstream publications may have noticed a name check in the Guardian newspaper's G2 section on 9/1/03. The article, on the front page of that section, was to do with the fact that many data storage forms are now obsolete and there are no machines around to extract the data from them. Things like the Amstrad 3" disk have completely disappeared and I did get an impassioned cry from someone recently who was desperate to get at an article he had written years ago and which was stored on a 5.25" drive.

The problem of reading data from things like the QL's micro-drive may have more to do with the decomposition of the media than the lack of available

reading devices but it does go to show that, as we have progressed through the centuries, the way we keep or records has become increasingly ephemeral. If you go into the British Museum or into the vaults of the House of Parliament, for instance, you will be able to extract data from documents dating back hundreds of years but data on a format made only 20 years ago may now be inaccessible. A sobering thought, isn't it?

The article did mention that the the universities of Leeds and Michigan had a project to store details of data formats and emulations to enable this data to be retrieved so maybe we should offer our expertise in this area. My wife tried to get at some files that she had made a few years back on a very old text editor. Both our PCs equipped with Office XP and all of the filters available failed to get the whole file. I was able to extract the file into QD and delete all of the odd control codes and then save it as an Word-editable 'doc' file by using Geoff Wicks wonderful QL2PC.



### Honourable Mentions in Despatches

There is, of course, only one person who could get the first honourable mention of the the new year and that has to be Marcel Kilgus for his amazing work on the Window Manager.



(and I know that this issue's column reads like the Kilgus fan club letter)

If you have not yet seen the screenshots or been one of the lucky ones who received the beta test versions of both this and the modified QPAC 2 then I would get along to the nearest QL workshop and find someone who can show it to you.

I will explain a bit. What Marcel has done is to add colour support to the Window Manager and this means that programs can be changed to use the system palette. This may seem, to some of you, a little trivial. Indeed at the Quanta 2000 meeting I was asked what the point of extra colours was, but you have only to use the new version to QPAC 2 to realise what a difference it makes.

He supplied the new QPAC 2 configured to have a light grey

background and have a 3D style border. The same 3D style has been added to the highlights which surround items as the cursor passes over them - giving the appearance of raising the item from the background. This may seem a trifle 'old hat' to users of other systems but the effect is not a pointless exercise in redecoration or mere eye candy.

If you go from one of the eye-soothing 'black print on a grey background' menus of the beta QPAC 2 that Marcel sent out with the test versions of the new QPC2 to a standard 'Green/Black/Red/White' application you will immediately see the difference. Marcel has re-designed all aspects of the visual presentation of the Window Manager and re-drawn the standard icons in a more 3D way. The cursor is easier to see and the whole thing has

been dragged into the 21st Century.

When the other programs have been updated to use this system it will stand comparison, visually, with any other modern computer system.

So first plaudit of 2003 goes to Marcel. I am sure there are some people working away in the wings waiting to get honourable mentions in the issues to come and I wait, with bated breath, for the next step forward. Over the 20 years of the QL's existence we have proved ourselves to both resourceful and resilient in our use of this O/S - let's make the year before the QL's 21st birthday a fitting lead in to its coming of age.

**A Happy New Year to all of You!**

# JUST TO MAKE SURE YOU DON'T FORGET IT!

## Your QL Today Subscription

The next issue will be the last one in the current volume. We have managed to hold the price steady for the last two years but rises in postal rates and printing costs are forcing us to look into the pricing for the next year.

One cost which we can avoid is the sending out of reminder letters and another is having to print extra copies of the first issue of the next volume to cope with late subscribers.

We are therefore asking you all to re-subscribe with this issue. This will give us advance notice of the numbers we need to print for the next issue and also mean that the late subscriptions notices can be sent out in the next issue.

As an incentive, and a way of saying 'Thank you' to our loyal readership we are going to hold the cover price at its current level until the end of March. This will mean that everyone who subscribes before April 1st will be able to do so at the lower rate.

Thank you for your support over the last seven years. Those of us who have made QL Today happen look forward to another year of QL Today and we hope that you do to.

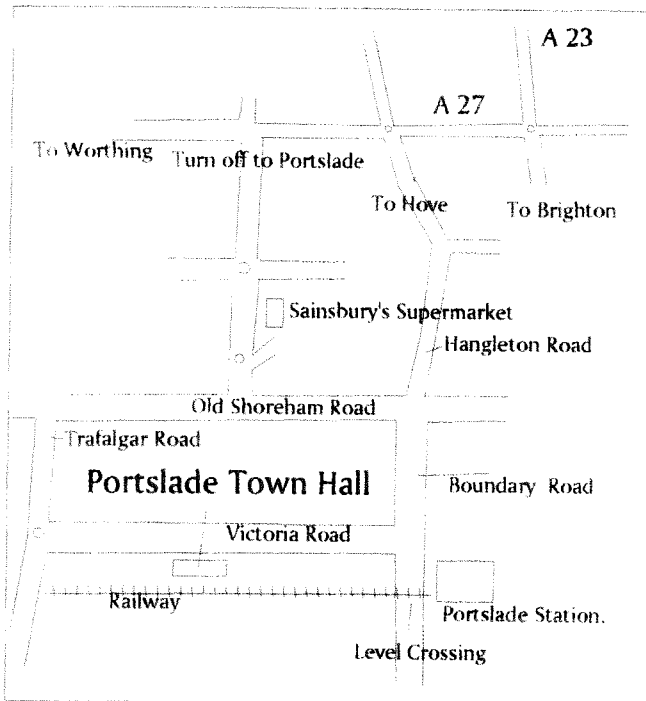




# The QL Show Agenda



## Hove Workshop - (UK)



**Quanta AGM and Workshop  
Portslade Town Hall  
Hove, Sussex  
May 4th 2003**

This year's Hove Workshop is being held later than usual because it is also going to be the venue for the QUANTA AGM. This will be our 9th show and the third one to be held in this venue. We hope to publish a list of local hotels and guesthouses in the next issue.

As usual our bevy of local ladies will be on hand to provide refreshments.  
See you all there.

## North American US Show 2003

**Saturday, 17th of May**

Quanta and NESQLUG are pleased to announce the US QL show to be held  
Saturday 17 May 2003 from 9 AM to 5 PM at the

**Econo Lodge at 370 Highland St., West Haven, Connecticut 06516-3522.**

West Haven is on the coast adjacent to New Haven. The special rate at the Econo-Lodge is \$59 (including tax!) per room per night for 1 to 4 persons if you make reservations before 17 April. Call 203 934-6611, email: [econolodge@comcast.net](mailto:econolodge@comcast.net) or mail. Please mention "Albert rate" and include your credit card number. Continental breakfast (coffee and pastry) is included.

New Haven Tweed (HVN) is the closest airport, but the closest international airport is 50 miles away - Bradley International in Hartford, CT. The New York airports JFK and La Guardia are a little over one hour away. Newark Airport in New Jersey is not much further but requires a ride through New York City. NESQLUG will endeavor to provide rides for those arriving by air. Please contact Bill Cable, email [cable@cyberportal.net](mailto:cable@cyberportal.net) if you need a need or can help out with a ride.

The Econo Lodge is 2 miles from the beach.

From the north, take I-95 exit 42, take right turn to Route 162 East, hotel is a half mile on the left.

Several restaurants and a shopping mall are nearby. Those who arrive by 6 PM Friday may optionally meet in the parking lot to eat together in a recommended restaurant. Nearby New Haven is the home of Yale University and contains several museums and other tourist attractions. Many other attractions are along the Connecticut coast, plus there is good and cheap public transportation to New York City. Ladies will meet at 10 AM to make plans with Dorothy Boehm to see nearby sights.

Contact Al Boehm, tel: 256 859-8051 or email [albertboehm@juno.com](mailto:albertboehm@juno.com) for further information.

**Looking forward to seeing you all again: J-M-S, QBranch and Marcel Kilgus will be there!**